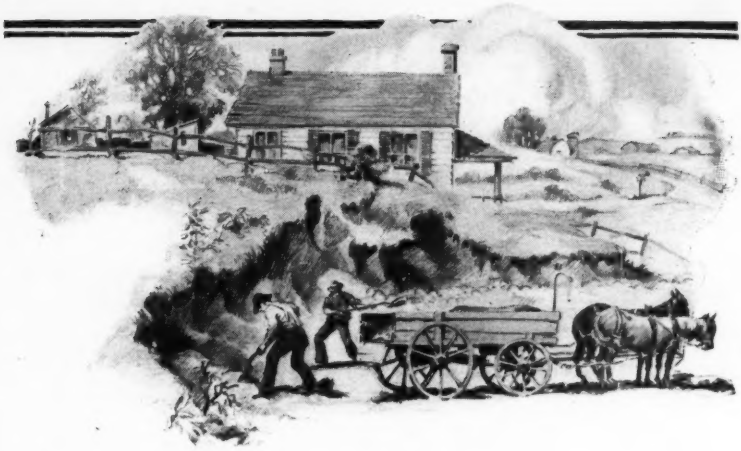
Better Crops

The Pocket Book of A...ure

April 1924

In this issue — Dean Stewart — C. T. Gregory — Albert Hansen — Dr. Frank Crane — J. A. Brock — Jeff McDermid



He discovered gravel—

HE made money as long as the gravel lasted—faster than he could have made it by farming.

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That is not the case at all.

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A GLANCE AHEAD

HERE is just a foretaste of what the May issue of BETTER CROPS will contain.

THE EXPERIMENT STATIONS AND AGRICULTURAL EXTENSION WORK

by Dr. E. W. Allen

Chief, Office of Experiment Stations, U. S. Department of Agriculture

Any utterance of Dr. Allen's would be bound to interest the readers of BETTER CROPS. This is a particularly interesting article because it discusses the relation of the investigator, the extension worker and the county agent to each other.

HIGH YIELDS MAKE LOW COSTS

by Herbert C. Brewer

National Soil Improvement Committee

No subject is of more vital interest to agriculturists today than the question of how to make farming profitable. The answer, of course, cannot be found in any one formula, but Mr. Brewer has collected a wealth of facts and illustrations on one important aspect of this problem. Watch out for this!

"LET US SPRAY"

by F. J. Schneiderhan

Virginia Experiment Station

An article that presents the results of recent investigations in a lively and readable form.

There will also be articles by some of our old friends and several new ones will be introduced to BETTER CROPS readers. And, of course, you can always count on

Yours truly,

Jeff

P. S.—If you have a friend who might be interested in subscribing to BETTER CROPS *we will be glad to send him (or her) a sample copy. Use the coupon below.*

JEFF McDERMID,
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Commercial fertilizer is not magic. It is no substitute for work, or for farming brains. It will not make a successful farmer out of a shiftless, ignorant failure. Fertilizer varies in quality like corn or tobacco or cotton, and some brands are worth more than others. Good fertilizers, like Royster's reliable old mixtures, are a godsend to good farmers who learn how to best use them to make money

Nearly forty years experience enters into the making of the Royster mixtures, and hundreds of thousands of the country's best farmers pin their faith to this famous old brand.

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Better Crops

The Pocket Book of Agriculture

VOLUME II NUMBER TWO

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EDITOR . . . . . Jeff McDermid
PUBLISHER and SECRETARY . . Verneur Edmund Pratt
PRESIDENT . . . . . E. K. Howe
VICE-PRESIDENT and TREASURER . . . H. A. Forbes
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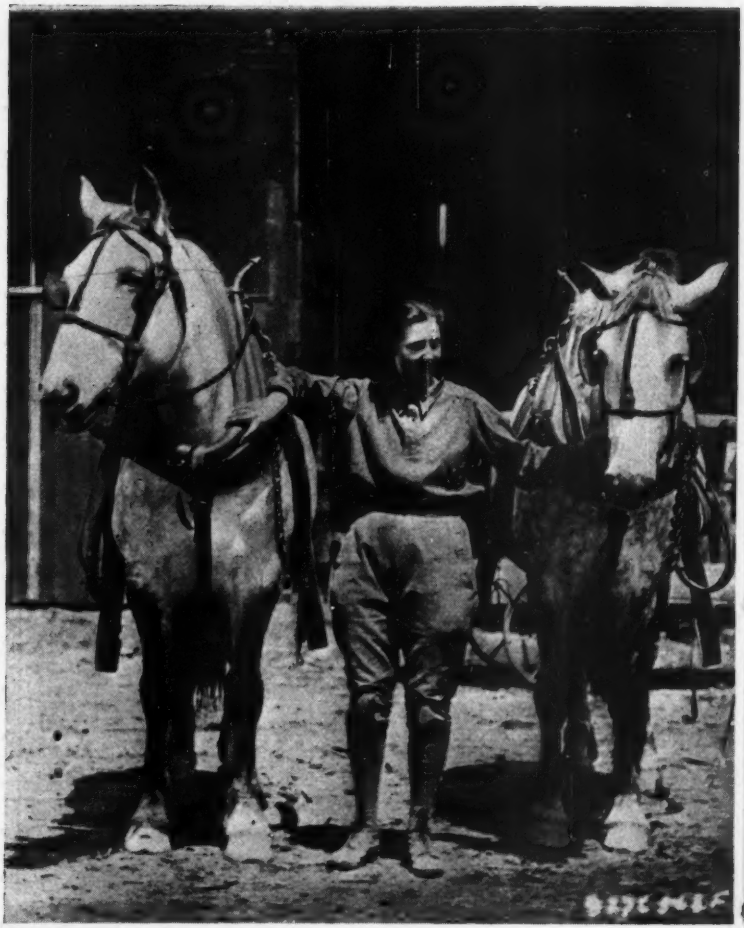
Business Offices: 81 Fulton Street, New York
Editorial Offices: 461 Eighth Avenue, New York



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¶ *Ready for the Spring's work—"One day's work of man and team" is changed to "woman and team" at the School of Horticulture at Ambler, Pennsylvania, where one of the pupils is seen starting for the field with her team.*

Better Crops

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VOL. II NEW YORK, APRIL, 1924 NO. 2

BOYS *and* GIRLS

¶An essay on inquisitiveness and its relation to the Boys and Girls Club Movement.

By Jeff McDermid

CURIOSITY started in the Garden of Eden. Inquisitiveness came later; for inquisitiveness, you know, is but curiosity with a college education.

Idle curiosity is the selfish curse of meandering gossips. Observing inquisitiveness is the lens through which science peeps into the secrets of Nature—the subtle chemical, which, sprinkled upon the parchment, colors her written laws to readable form and evolves the steam kettle of Watt, the electric key of Franklin and the telegraph of Morse.

THE engineer and scientist doubt everything that cannot be proved; and the best engineer or scientist is he who has not lost a certain child-like inquisitiveness, an ability to ask himself questions the answers to which are not known, linked to a stick-to-it-iveness which knows no defeat until the answers are found. The trouble with inquisitiveness is that, like love, when it become professional it loses its potency and charm. Love, to be good and sweet and fresh must be

amateur. And so it is with inquisitiveness. It must be the product of a virgin mind.

Inquisitive men and curious children are souls in tune—the secrets of the world are opened to them. I have a deep regard for children, and for those men-children whose minds are still like sharp pointed sticks, poking, everlastingly poking into the knowledge heaps of the universe, hoping that some bright jewel of revelation will be unearthed.

Children are the naturally curious—if we can but harness this fresh, virgin inquisitiveness before experience deadens the impression-sense, who knows but that secrets to us hidden since the inception of the planets may be startlingly revealed? If this why-stuff can only be bred and cross-bred with constructive and industrious interest, what a leap forward this old world will make.

I say "If," when, as a matter of fact, the thing is almost done. Men, all of whom were once boys, are beginning to take an interest in children—a professional interest which until now has been exclusively lavished upon Holstein heifers, chow pups and Plymouth Rocks. The boy and girl are *here* and—be patient—who knows but that just around the corner may be The Day when more attention will be paid to the boy-soul and girl-soul than is now squandered on cows, sows, and hens.

That boys and girls are the men and women of tomorrow is a simple statement the truth of which will not be denied. How I would like to look forward and see the young man, now soberly and industriously poring over a book in some little wayside school adown a country lane, who two decades hence will be addressed as Mr. President! What would I not give to tear aside the veil and see my daughter of today proudly reigning on her chosen platform!

The Boy and Girl Movement, unless I am misinformed, has its source in a desire to teach and habituate—a yearning to train the tender vine upon the stick in the way which custom has ordained a vine shall grow. This, I contend, is a weakness of the Movement.

That boys and girls need training; that a certain sum of learning is already existent, the truth of which has been proven; that this learning should be assimilated by the boys and girls; that squelching of the barbaric tendencies and ascension of the human qualities, is profoundly necessary; all of this I admit.

But my contention is that there is more to be learned in this world than *we have* learned—that we have barely scratched the surface of things; that what discoveries we have made have been made by child-minds, and that to child-minds must we look for future revelations. The leader of the Boys and Girls Clubs who takes upon himself the majestic mantle of Teacher, without weaving through it the silver strands of Student is not only missing half his opportunity, but is cheating the world of potentialities. The teacher should always learn, the leader follow and the master obey; for a teacher that cannot learn is but a bale of compressed, musty knowledge at which the young may nibble and get sour stomachs; and the leader who cannot at times descend into the multitude and follow has lost that great humanity which made him a leader; while the master who cannot obey is not himself fit to give orders.

To teach is to learn; to learn to teach. And more can be learned from children than can be taught them. Nature, with her marvellous foresight has so arranged that in the bosom of the normal family there grows up a child-mind with a brilliant crimson question mark on its forehead — symbolic of the Eternal Query. Father and mother, whose minds have (*turn to page 62*)

He Took Up FARMING

—because he found out how to make it profitable.

By *Albert E. Wilkinson*
Vegetable Specialist, Connecticut Agricultural College

There's a big thought in this short article.

THE most important project in vegetable extension work is not that of growing or selling a particular crop but in saving a boy or man to the particular industry. An excellent example of how it has proved to save a boy has just been completed in Danbury, Connecticut.

A farmer using a dairy as his main source of income had his 18 year old son state to him that unless "dad" showed him that farming contained more profit he would not stay on the farm. As this request had come to the father before, from an older son and the son had left to enter the automobile work, the father reasoned that it was high time to discover what the boys meant. On questioning the boy he found that he desired to grow a cash crop of high income return. The question was finally settled and the boy selected cauliflower as the crop. The county agent immediately entered the field and through him the vegetable specialist. A detailed statement or plan was given to the boy in which selection of soil, liming, selecting of seed, kinds and amount of fertilizer, planting dates, transplanting dates, distances apart, cultivation, insect control, when and how and with what, tying, harvesting, grading, packing and marketing were included. Every item was carried out following these specific directions and on time. The results for the first year have been most excellent. The boy has renewed his interest in the farm and the father has put on new life. The reason for this increased interest and activity is that the profits above cost were $270.55 in hard money.

In detail the cost of growing an acre of cauliflower has been as follows:

Seed	$4.50
Plowing, 2 days	16.00
Harrowing, 2 days	16.00
Lime, 4 tons, carting incl.	15.00
Fertilizer, ½ ton, freight included	29.50
Marketing, 2 hours	4.00
Setting plants:	
July 1	8.40
July 2	6.20
July 3	6.00
Hoeing, 4 times	40.00
Spraying, 2 times	10.00
Cutting and carting	196.00
Crates	10.00
Twine	4.50
Tying	15.00
	$381.10

The results from the crop in cash were:

RECEIVED FOR CROP	$651.65
EXPENSES, *including labor*	381.10
PROFIT ABOVE COSTS	$270.55

(*turn to page 40*)

Oranges and lemons are picked with great care so that a maximum amount of good fruit can be secured.

MARKETING *a*

What cooperative enterprise can do when the right plan is followed.

MARKETING the citrus crops of its 11,000 grower-members upon a cooperative, non-profit basis, the California Fruit Growers Exchange has continuously and consistently grown in size and scope of activity during its thirty years of existence, because it has proven the theories of cooperative marketing to be practical under varying business conditions.

Like most successful cooperative marketing groups this organization was born of the necessity for a service that would take a grower's product and market it successfully, returning the full value of the products to the producer and handling its operations on a cost basis.

The citrus industry of California, which from the commercial standpoint is less than fifty years old, represents an investment of between two hundred and three hundred million dollars today. The annual shipments of oranges and lemons in a normal year from this state have now reached the total of between 50,000 and 60,000 carloads, with a valuation in California which varies from $40,000,000 to $60,000,000.

So successful has been the Exchange in developing and perfecting the cooperative principle in marketing an agricultural product that it has become world famous and has been used as a model for many similar marketing

A typical California packing house. Some of these packers pack as many as 75 boxes a day.

$100,000,000 Crop

By W. B. Geissinger

Assistant Advertising Manager, California Fruit Growers' Exchange

organizations in various sections of this and other countries.

Perhaps there has been no other one factor which has had a greater stabilizing influence upon the fruit and vegetable industry of this country than the existence of the California Fruit Growers Exchange with its national system of distribution and advertising.

Through years of systematic distribution and intensive advertising on oranges and lemons the Exchange has established a ready market for its products.

Latest statistics on bearing and non-bearing citrus acreage in the so called "Golden State" show that there are 257,903 acres of land planted to citrus orchards.

The citrus fruit season ended October 31, 1923, showed the largest total supply in the markets of the United States and Canada in their history. A total of approximately 100,000 carloads of oranges and grapefruit and 13,000 carloads of lemons was consumed during the year. This included imports from Porto Rico, Japan, and Italy, as well as the production of these fruits in other parts of the United States. Of this total more than fifty per cent, or 50,966 carloads of oranges and grapefruit and 8,741 cars of lemons were grown, packed and shipped in California.

There were shipped through the Exchange during the year 36,999 cars of oranges and grapefruit,

8,259 cars of lemons, or 72.5 per cent of California's orange and grapefruit production and 94.8 per cent of the lemons grown.

THE returns to Exchange members f.o.b. cars California for the year, were $55,223,450, with a delivered value to the wholesale trade of $81,258,169. Based on Exchange returns, the state of California received $71,007,705 for the total crop, the delivered value which equaled $105,486,506, the latter including $34,478,800 for freight and refrigeration.

Organized under the Civil Code of California, which permits growers engaged in the production, packing and marketing of a horticultural product to form a non-profit, co-operative body, the California Fruit Growers Exchange was incorporated on March 27, 1905, and on September 1st of that year succeeded to the business of the Southern California Fruit Exchange which was its predecessor.

The Exchange today is composed of 200 separate associations or shippers handling the fruit of its 11,000 grower members through 21 sub-exchanges which in turn "clear" their shipments and collections through the Central Exchange located in Los Angeles.

In 60 of the largest markets of this country and Canada the Exchange has its own salaried representatives on the ground to handle the sale and proper distribution of the shippers' fruit. They sell in approximately 1,000 established carlot markets handling the famous Sunkist and Red Ball brands of Exchange fruit. Through the hands of 3,500 jobbers the fruit passes to the 400,000 retailers handling fresh fruits and vegetables, and ultimately finds its way to the tables of the 118,000,000 consumers of these two countries.

While the central Exchange located in Los Angeles is known as a non-capital stock corporation, the 200 local associations which pick, pack and ship the fruit of their members are organized either upon the basis of a capital stock corporation or without stock, upon a mutual benefit arrangement.

The Central Exchange accumulates no profits and declares no dividends on the business transacted—its business all being conducted on a cooperative plan at absolute cost. Every citrus grower receives all the (*turn to page 57*)

Once each year orange groves are covered with canvas and fumigated to kill scale insects. Under sunlight the gas injures the tree so fumigating is done at night.

¶Here is an interesting article on a crop that is becoming more important every year.

More Profits *from* Sugar Beets

By J. Arthur Brock

Specialist in Sugar Beet Culture

Agricultural Editor—FACTS ABOUT SUGAR

ONE of the big problems confronting sugar beet growers at the present time is the matter of proper fertilization. Especially is this true in Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota and Iowa, where the immediate need for fertilizer is more pronounced than in the irrigated sections of the West.

This problem has become so important that, with a few exceptions, every beet sugar company has, during the past few years, engaged trained agriculturists for the purpose of giving the matter special study and to conduct fertilizer experiments and demonstrations.

Unfortunately only a few of the Agricultural Colleges and State Experiment Stations have undertaken to study this phase of sugar beet culture and hence very little data on the subject has been made available. In addition to this the fact that sugar beet culture has not been taught except in a very few colleges has resulted in there not being sufficient trained men to conduct the experimental work of the various sugar companies. It might be of interest to note that during the past month two beet sugar companies have been forced to send to Europe for trained sugar beet agriculturists.

The use of commercial fertilizers in connection with sugar beet culture has only been practiced in the United States for a comparatively short time and, while thousands of tons of commercial fertilizer are applied annually by sugar beet growers, statistics show that the application of commercial fertilizer has not yet become general.

SEVERAL factors have operated towards retarding the use of commercial fertilizer in sugar beet culture: (1) the lack of authentic data; (2) the lack of knowledge on the part of the beet sugar companies' fieldmen relative to the use of fertilizers and (3) the seemingly high cost of the article. As has been stated very little authentic data on sugar beet fertilization has been published with the result that when the beet sugar companies first realized the necessity for applying commercial fertilizer they had no accurate data to serve as a guide

in either the selection of a desirable formula or in the matter of application. This, together with the fact that until very recently the fieldmen employed by beet sugar companies were not technically trained, resulted in the adoption of a number of undesirable practices. For example, many of the fieldmen advocated the use of such fertilizer formulas as 1–8–1 and 1–9–1 while others advised that applications of acid phosphate alone should be made.

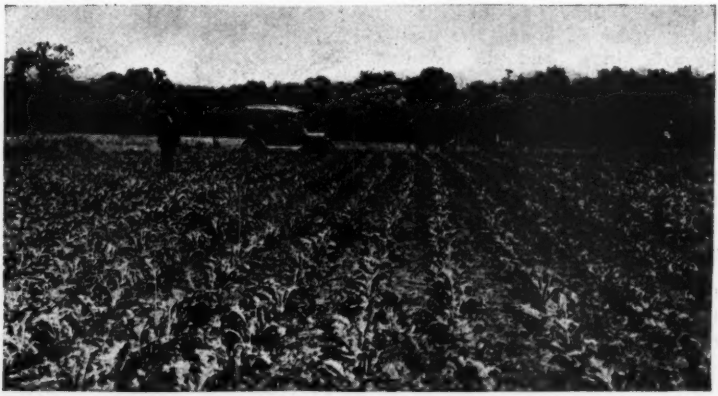
When the technically trained agriculturists entered the beet sugar industry and advocated the use of high grade complete fertilizers at the rate of from three hundred to five hundred pounds per acre it was generally predicted that "it can't be done."

Fortunately this prediction has been proven to be unwarranted and today the beet sugar company fieldmen encounter no difficulty in inducing the farmers to purchase high grade complete fertilizers at costs ranging from $35 to $45 per ton nor in having them apply from three hundred to six hundred pounds of the article per acre.

In brief, the American sugar beet growers have been "sold" on the idea of applying liberal amounts of high grade complete fertilizers. The big problem now is to determine "what is the proper fertilizer."

In undertaking to solve this vital problem the agriculturist must ever keep in mind the fact that the purpose of sugar beet growing is to produce "sugar per acre." In other words he cannot advocate a fertilizer formula which will produce a large yield of low test sugar beets nor can he advocate the use of a formula which will increase the sugar content at the expense of the yield per acre. Rather the proper fertilizer for sugar beets must be one which will produce a large yield of high testing sugar beets having a high purity.

When the old style of contract was in force whereby the grower was paid on a tonnage basis the matter of sugar content or purity did not interest the grower. All he was interested in was the matter of producing tons of beets per acre. While it is true that the beet sugar company was interested in tonnage the principal interest was that of sugar per ton of beets. With the present form of contract whereby the farmer is paid for his crop on the basis of both tonnage and sugar per acre the different interests were made mutual and since both the grower and the sugar company have identical interests (*turn to page 53*)



How can sugar beet fields be made more profitable? Read Mr. Brock's article.

How We Solved *Our* Publicity Problem

By W. C. *Sterrett*
County Agent, Clearfield, Pennsylvania

¶ Bankers, the Farm Bureau, the local papers and the County Agent worked together and achieved notable results

THE greatest problem of our County Farm Bureau two years ago, was to get the results of our work before the people of the county. There were two angles to this problem, namely, lack of finances and poor cooperation with local and county papers. Both of these difficulties were overcome by the cooperation of the banks of the county.

Our method of procedure in brief was as follows: We explained the difficulty to the president of the leading bank in the county, who seemed very much enthused and offered to finance the whole proposition through his bank. We felt, however, that it would be better if we could make it a county wide proposition, taking in all of the banks in the county and after explaining our viewpoint, the president of this bank conceded to our opinion and offered his hearty cooperation and assistance in working out a solution to the problem. The next step was to organize the banks of the county into a county organization. This was done at an early date, at which time the majority of the sixteen banks in the county signified their willingness to cooperate. An Executive Committee was appointed to work out a system of finances and also a program of work. This committee reported at the next meeting one month later and suggested that $1,000 be appropriated to the Farm Bureau for publicity work along the lines of Livestock Improvement, since they felt that this project was the most important in the county. The suggestion of the committee was unanimously adopted by the eight banks present and the Secretary instructed to invite the remaining eight banks to join the association, explaining the work as outlined, as a result of which every bank in the county responded.

THE method of raising the $1,000 was an assessment on the capital stock and resources of the bank. This method placed the greatest burden on the large town and city banks, which were able to stand the assessment better than the country banks, many of which had little surplus and a low capital stock, consequently a comparatively small assessment, which worked out to the satisfaction of all in both cases.

The Executive Committee of the Bankers' Association in cooperation with the Farm Bureau next took up the question of how to spend the

$1,000 to the greatest advantage in the way of publicity. The first thought was to edit a small paper and send it out to all of the farmers in the county once each month, but after considerable thought and consideration a different plan was decided upon. We discussed the subject further and discovered that one of the local daily papers would be willing to cooperate in this matter and we decided to run a full page of Livestock news through this paper, the Farm Bureau to furnish the news material, the local paper to edit the same once each month and to mail each farmer in the county a copy of the paper, the banks of the county to pay the bill out of the $1,000 appropriated. The cost of the page averaged $65 per issue, which seemed quite an amount upon first thought. However the result has been that the Farm Bureau received much more than one page for publicity work. While the Livestock page is used exclusively for Livestock news, we are privileged to use as much space as we desire each month for publicity along other lines of work outside of livestock. This makes it possible to get before the people of the county the results of every line of activity.

When and how do the banks get returns for their money, you ask? That can be answered in a single word, "Advertisement." On the top of each edition of the Livestock page a space four and one half by six inches is devoted to the following advertisement. "Livestock Page published monthly and sent to all of the Farmers in the County by the Livestock Auxiliary Association, composed of" (Each individual bank with address listed below).

The banks further feel that they must of necessity do a certain amount of advertising and that this method is as good as any. They appreciate the fact that in certain counties of Pennsylvania where the main industry is coal and other industries outside of farming that the time must come when Agriculture will be the only thing left and the rock upon which they must eventually stand. The more prosperity they can create among the farmers of the county the greater will be their returns.

As a result of the publicity either directly or indirectly, the Farm Bureau during the past year was able to bring into the county two car loads of Pure Bred Livestock which was also financed by the Bankers' Association.

The cooperation of the one paper had the desired effect of bringing all of the other papers of the county into line and in order to prevent jealousy upon the part of the rest and to assure cooperation in the future, a greater part of the news items along Livestock as well as other Farm Bureau articles published in the Livestock Edition are sent to the other papers of the county, with the privilege of using as much of the material as they desired. The result is in practically every case the other papers are willing to cooperate to the fullest extent in writing up Farm Bureau news as well as to advertise any meetings that will be held in that territory covered by that particular paper.

After two years experience the paper cooperating has found that the circulation among the farmers has been greatly increased and through its wide monthly circulation it has been able to secure several more pages of advertisement from the merchants of the county. While the editor claims it is of slight financial benefit to them, yet we believe if the banks decided to discontinue the page that we would have little difficulty in getting a group of local merchants to finance the page for the sake of the advertisement medium that it furnishes.

The work and responsibility of getting the material for this page falls largely upon the County Agent. However, an effort (*turn to page 55*)

Putting Cabbage Back *in the* Home Garden

By C. T. Gregory
Purdue University Agricultural Extension Department

A little story that will be helpful to all cabbage growers.

FOR several years cabbages in Indiana have been suffering from the yellow plague. Many gardeners have given up raising this valuable vegetable simply because they knew it was useless to try. This statement is made on the authority of the gardeners themselves. Everywhere you could hear the same story. "During the past four or five years I have tried to raise cabbage in my garden and every year it has turned yellow and died. Sometimes it would almost form heads and other times it dies a few weeks after being set out."

It did not take long to find out that this disease is the yellows which is the most common and destructive cabbage disease in Indiana. Experiments had already shown that there is no use trying to get rid of it by any ordinary means such as by fertilizing or by seed treatment. The only thing to do was to introduce the yellows resistant varieties of cabbage and find out if they were any good in Indiana. We secured seed of the Wisconsin Hollander, Wisconsin All-Seasons and Wisconsin Succession and had the plants grown in land where cabbage had failed repeatedly. These varieties immediately proved their worth; they produced a good crop where ordinary cabbage could not survive.

Not being completely satisfied with this we tried these same varieties again in different places in the state. The results were the same. There was no doubt that yellows resistant cabbage would solve our problem. The next thing was to let the gardeners know about it and that is where "it pays to advertise." We advertised by newspaper stories about what these farmers had done and by exhibits of diseased and resistant cabbage. Our problem at this time was twofold because we first had to show the gardeners that they had yellows and then that this new cabbage was what they needed.

The success of this cabbage is attested by the fact that it is being used by commercial gardeners and home gardeners in over half the counties of the state. In Lake County the majority of the growers know that they must use these varieties to get a crop. One seed dealer has on his book this year several orders for cabbage seed which stipulate that the yellows resistant varieties must be furnished, else the order is cancelled.

The gardeners at Indianapolis have had this disease in their soil for fifteen years. To be sure it was not serious at first, but in recent years it has been taking fifty per cent or more of (*turn to page 47*)

Selling Ideas *to the* Farmer

By *Laurence W. Taylor*
Assistant Farm Advisor, Bakersfield, California

¶Here's good dope that's worth your thinking over.

WHEN the County Agent, after thought and study, consultation and intuition finally hits on a project that will undoubtedly result in much good, and which should go big with the farmers, he has only just begun. His big job is to sell his idea to the farmer.

The County Agent jumps in his flivver and rides out to the prospect's farm. He walks across the plowed field, through the stubble to the hay stack where he finds his man hard at work. The obliging farmer leaves the crew short handed while he listens to the proposal. As the County Agent explains the details the farmer checks over in his mind the several mower parts, the piece of rope and small monkey wrench that his wife must get in town the next day and at the end compliments the whole thing and suggests that he is too busy to take part in it, but Mr. Brown would be a good man on the committee because he has retired from actual farming and has lots of time. This is in spite of the fact that Jim Brown has served on nearly every committee since the Farm Bureau was organized and has been continuously over-worked.

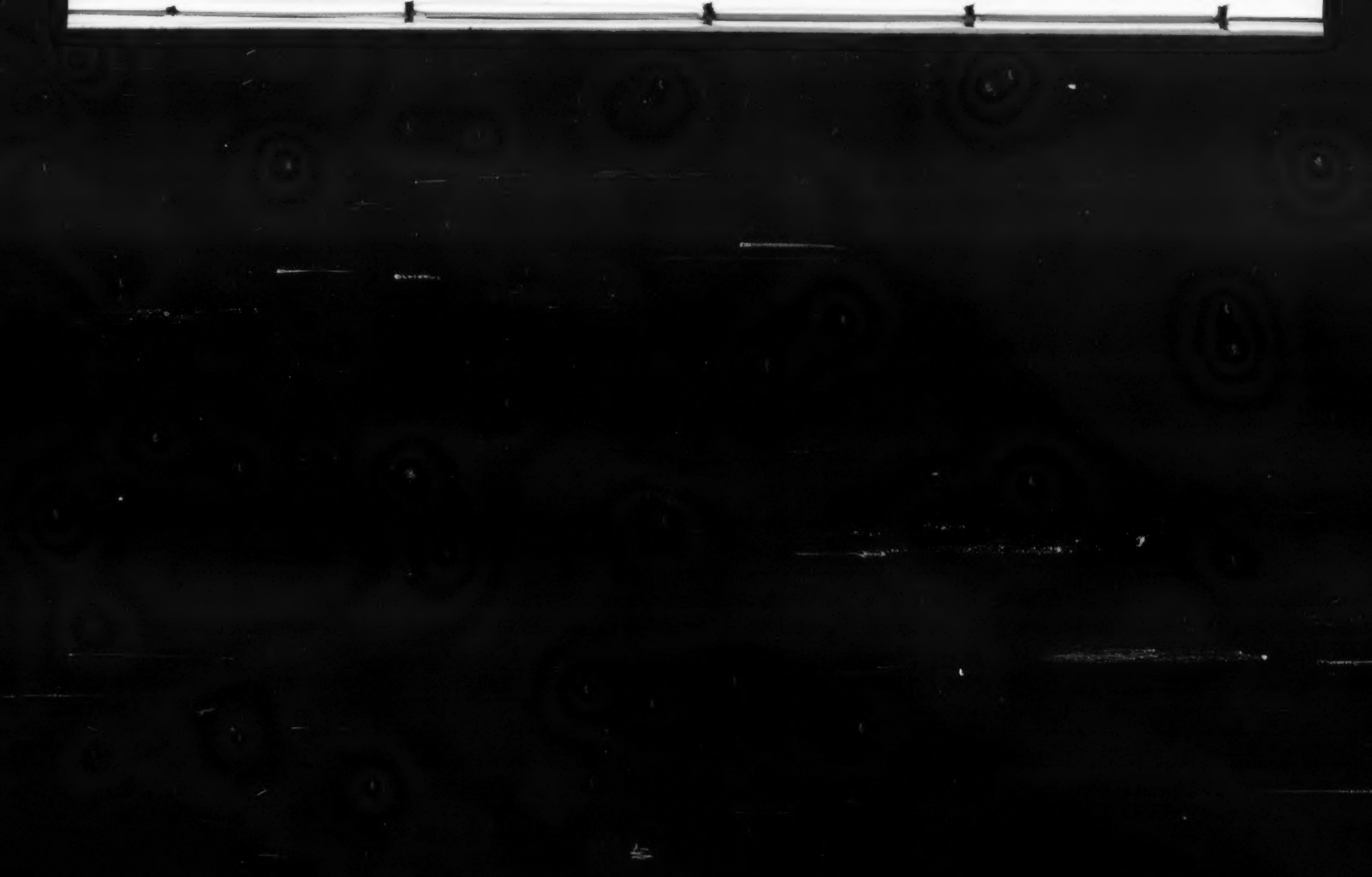
It is difficult to sell ideas to the farmer when he is head over heels in hard work. It is difficult to sell ideas to the farmer at all, largely because he is so occupied with the ever present details of his business that he finds it difficult to raise his head and survey the situation in general. He is so busy keeping his flivver moving along on life's highway that he has no time to figure out where the highway is taking him.

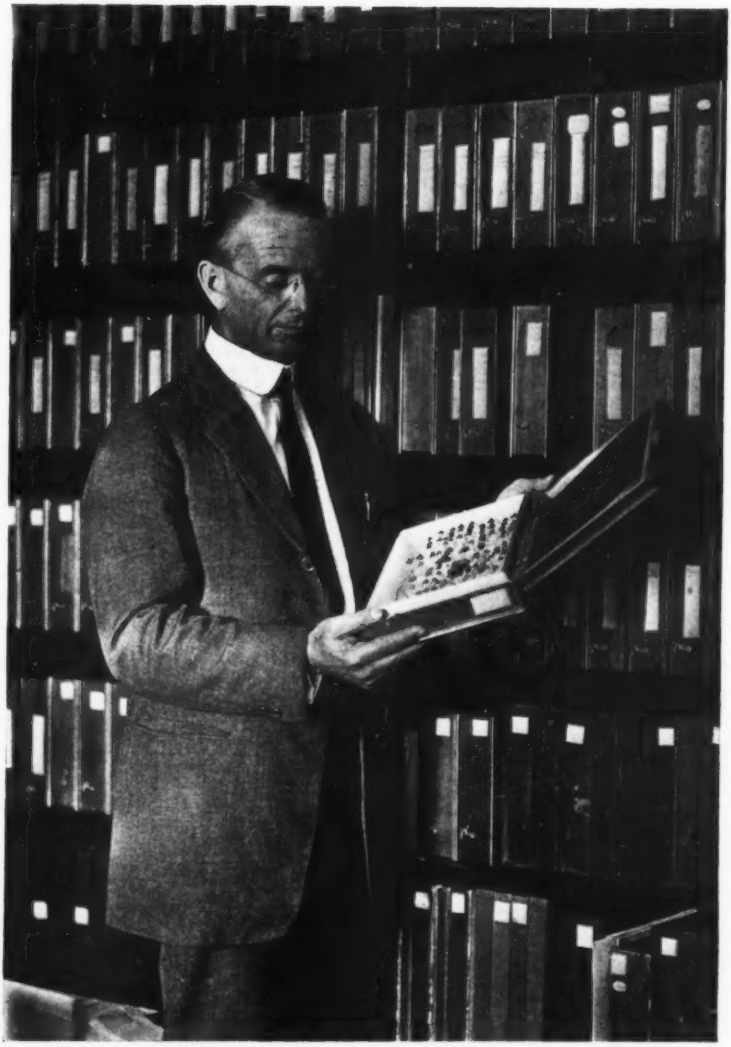
The idea cannot be considered sold until it is translated into action. It is not sold until he reads the sign at the crossroads and changes his course accordingly.

Any semi-orator can give a talk on better bulls, soil fertilizers, long system pruning or the value of spraying and get a large part of his audience to agree with him. But only when the man buys the bull, spreads the fertilizer, changes his system of pruning, or sprays his orchard has the idea been sold.

There are four legitimate means of selling ideas; they may be sold by means of information, rivalry, pressure and service.

THE man who listens to the County Agent lecture on the value of the silo and then goes home and builds one has been sold by means of information. In the same class are those who put (*turn to page 61*)





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Dr. E. D. Ball, Director of Scientific work for the Department of Agriculture. He was formerly entomologist at Iowa State College.

© U. S. D. A.

On the job! County Agent J. W. Hendricks of Catawba County, North Carolina, is figuring with a cooperating farmer about the gains those hogs are making.

© Underwood

Seventeen years ago John Rugowski of St. Francis, Wis., turned from lathing to farming. Today he is famous as "Wisconsin's Burbank" and has almost 2,000 distinct originations of flowers and vegetables to back up the title.

"Good morning, how do you like us?" writes County Agent L. E. McDaniels of Basin, Wyo., who contributed this picture.

© U. S. D. A.

Ella Holmes, 17-year-old club member of Huron County, Ohio, has won the county championship for excellence in demonstrating the best known methods for preparation and preservation of foods each of the four years she has been in club work and was state champion in 1922. Her canning record would make any housewife envious.

© U. S. D. A.

This young poultryman, William Marvel of Kent County, Delaware, won prizes at the Kent-Sussex Fair, the Delaware State Fair, and Fruitland Grange Show. He was a member for the judging and demonstration team from his club in 1922 and 1923 which won first place in county and state fairs.

Dr. Robert Stewart, Dean of the College of Agriculture University of Nevada, Reno, Nevada. Dean Stewart is the author of numerous bulletins and articles on semi-arid agriculture and soil fertility. He was formerly with the Utah and Illinois Stations.

Dean Stewart discusses some interesting experiments that point towards greater economy in feeding livestock.

Food *from* Sunflowers

By Robert Stewart
College of Agriculture, University of Nevada

FORAGE crops are necessary for the production of feed for domestic animals which are essential as a source of meat, milk, and butter for human consumption. Forage crops are preserved for use during the winter either as dry hay or as succulent silage.

Silage is the product of the fermentation of green fodder in a silo from which the excess of air has been excluded. In some farms this process of preservation of feed has been employed for over a century so the idea is not a new one. Some of the crops used for silage are corn, soybean, sugar cane, vetches and oats. Quite recently sunflowers have been used for silage with very promising results.

Silage is more palatable than dry fodder, and animals will eat a larger quantity and produce a greater gain in meat or milk than when fed on dry fodder alone. Silage furnishes a succulent feed during the winter when the green feed of the pasture is not available.

The premier forage crop for silage is corn. Unfortunately, corn is not well adapted to many sections of the country where the nights are cool and the growing season short, such as those found in the high northern latitudes of the western part of North America. Most of the legumes such as alfalfa and sweet clover which thrive luxuriantly in this region are not suited for silage production as they produce an evil smelling silage, due, no doubt, to their high protein and low sugar content. Fortunately, the common sunflower *"Helianthus Annuus"* is native to this region where the wild form often occupies extensive areas. Under cultivation numerous varieties have been developed of which the agriculturally valuable sorts are those which produce a single large head.

Sunflowers are grown extensively in Russia for the seed, which is used both for poultry feed and for oil production. In America their culture has not been large; they have been sometimes grown thickly and cut for fodder, but the woody nature of the plants makes them undesirable for this purpose. In 1910 there were only 4,731 acres of sunflowers produced in the United States which yielded 63,677 bushels of seed. Illinois produced most of the crops with 3,979 acres, with 49,064 bushels of seed.

Cultivated sunflowers which are not suitable for forage either as the green crop or as dry fodder are admirably adapted for silage production. The first recorded use of sunflowers for silage is that of the Canadian Experimental Farms. Professor James W. Robertson of

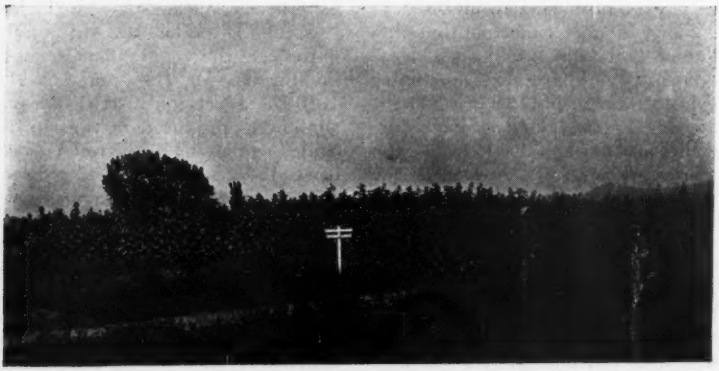
the Canadian Experimental Farms in 1893 used the sunflower heads in corn silage and found that the amount of grain fed to dairy cows could be very materially reduced at a considerable saving of the feed cost. The following silage mixture was used: Soybeans from one-half acre; corn from one acre and sunflower heads from one-fourth acre. The sunflower silage mixture thus used produced a highly colored and rich milk, although no increase in the actual production of milk was observed. The practice of using sunflower heads in this way was never introduced to any extent into the United States.

In the United States the Montana Experimental Station created interest anew in the use of sunflowers for food production by using sunflower silage for feed for dairy cows. The silage used was made from the entire plant, including the stock and head. Since that time various experiment stations have reported the results of the use of sunflowers as a silage crop, sometimes with very favorable results and occasionally with luke warm recommendations.

The Russian sunflower was found to be especially well adapted to the climatic and soil conditions of the high altitude of western Nevada where the growing season is short and the nights are cool. The sunflower is planted any time from the middle of May to the first of June and is ready for harvest by the first of September, when it is cut green and placed in the silo before any injury is caused by a killing frost. It was found to be superior to corn in this respect as corn for ensilage was sometimes seriously injured by a killing frost before it reached a stage of development suitable for silage.

A number of farmers of Metropolis, Nevada, have grown the crop with excellent results. They obtained a yield of approximately twelve tons per acre on irrigated land and about five tons under *dry farming conditions*. They all agree that the crop is well adapted to their soil and climatic conditions as sunflowers will grow and produce well under conditions where corn would freeze. Some of the silos were not filled until October and yet the sunflower crop was not frozen.

The sunflower silage was fed to dairy cows with excellent results. W. D. Hill of Metropolis, reported that he actually secured a better flow of milk while he was feeding sunflower silage than while he was feeding corn silage. Excellent alfalfa hay in Metropolis was selling for $8.00 a ton (*turn to page 45*)



A field of sunflowers raised for silage.

LEAVE IT *to the* BOYS!

These youngsters surprised their elders and helped to educate them.

By *Thomas* E. *Hand*

County Agent, Hinds County, Mississippi

THREE years ago the use of commercial fertilizers in Hinds County, Mississippi on any crop other than an intensively cultivated vegetable crop was looked upon as purely experimental and not to be indulged in except by wealthy city agriculturalists, who had an undue amount of curiosity and no less money, or an experimental station, which had the unlimited financial backing of the Federal Government, and was supposed to throw away money on new fads in order to attract attention.

But when an eleven year old youngster makes twice as much cotton and ten times as much money on one acre of land as his 47 year old father does on his whole farm of nine acres; when a 15 year old schoolboy working during his spare time makes fifteen times as many pounds of seed cotton on one acre as the average per acre yield for his county will be this year, and when every single one of 150 schoolboys (from all kinds of homes scattered throughout every community of a county) who carried out instructions made good money, in spite of the most unfavorable year in the history of the county, folks naturally begin to open their eyes and ask how it was done.

When the inquirers find to their surprise that the new process involved no laborious manure hauling; no tedious and pain-taking plantings of clover with nurse crops and turning under and, in fact, no doing of the dozen and two other things to which we have been brought up to believe in religiously but never practice; they get another jolt. This jolt is not hard enough, however, to make them lose consciousness long enough to forget to borrow tax money from 13 year old James, the baby boy, who cooperated with the Farm Bureau. When they find the secret to be so easily executed as to require nothing more than an order to the County Agent to give the hired man a sack of that white lightning that makes cotton in spite of rains and boll weevil they fall into the game; expressly without intention, but they get in just the same.

THEY got in this year to the tune of $100,000 worth and indications are that this amount will be trebled in fertilizer purchases in

The boys had regular club meetings at the school house with their club leader.

Hinds County during the present planting season.

An extract from the minute book of the Hinds County Farm Bureau tells the story of how it was done:

"The Board of Directors of the Hinds County Farm Bureau in official session this the 9th of March, 1923, hereby endorsed the plan for Cotton Demonstrations to be carried out with 150 Club Boys of Hinds County during 1923, as outlined by the County Agent.

"We also hereby endorse the budget for financing this project as per copy attached to these minutes, and hereby pledge the resources of the Hinds County Farm Bureau to protect the Merchants Bank and Trust Company against loss in lending $14.25 to each of 150 boys to be selected by the County Agent, in carrying out above said Cotton Club project to the extent of the attached summary budget.

"We appreciate the cooperation of the Merchants Bank and Trust Company in this project which we believe will be valuable to cotton farmers generally throughout the entire county, to the respective communities where organized Agricultural Clubs exist and the 150 individual Cotton Club Members in particular; and to save the Merchants Bank and Trust Company the expense and trouble of handling each of these small accounts individually, we the Directors hereby agree to endorse a note covering the entire budget as herewith attached and to have the individual accounts with the respective boys handled by the Secretary of the Hinds County Farm Bureau.

"It is agreed that the individual notes of the 150 boys for $14.25 each will be attached to this note and deposited at the Merchants Bank and Trust Company as added security for this loan; that these individual notes shall be collected by the Hinds County Farm Bureau from the sale of the individuals cotton and cotton seed, as outlined to us by the County Agent, and that the aggregate amount of the budget covered by our summary note will be paid over to the Merchants Bank and Trust Company upon maturity of our note, after the products of the Cotton Club Member have been sold and their individual notes collected.

"Our aggregate note shall bear eight per cent interest but this interest will be absorbed by the funds of the Hinds County Farm Bureau and no interest will be charged the indi- (*turn to page 49*)

BOOKS
that have helped me

By F. C. Smith
County Agent,
Essex, N. Y.

So much of the County Agents' time is spent in executive work,—in handling people, that early in my experience as a county agent I decided to study courses dealing with psychology, salesmanship, etc.

One of my first ventures was Dr. Blackford's course in character analysis. We study types of cattle and learn to note slight differences. In handling people we must follow similar methods. All big business men, successful men of affairs are shrewd, keen students of human nature. Anything which will help one to accurately "size a man up" at a glance is worth studying.

Other books along the same lines are: "Practical Lessons in Applied Psychology" by Napoleon Hill, published by G. B. Williams & Co., 149 W. Ohio St., Chicago, Ill.

Another very good book on psychology for a public speaker is, "The Crowd, a Study of the Popular Mind" by LeBon, published by T. Fisher Unwin, London.

"Vocational Psychology" by Hollingworth, published by D. P. Appleton & Co., New York—shows the value of and how to use psychology in employment.

"Psychology in Education," by Roank, published by the American Book Co., is a general course of psychology treating of fundamentals.

"Educational Resources of Village and Rural Communities" by Hart, Macmillan publishers, discusses rural problems fairly well. (*turn to page 40*)

Jeffisms

If I were asked to name the greatest thing in life, it would not be love, nor riches, nor power—but *sincerity*.

I know a guy so stingy he won't open his mouth for fear the wind will wear out the gold in his teeth.

The difference between success and failure is simply the difference between do and delay.

Until someone begins to charge real money for Pure Air, Sunshine and Good Water men will continue to buy substitutes in the form of medicine. We value a thing at what it costs.

Don't be disappointed to find a spider in the bunch of grapes. They're still grapes; and the spider can be removed.

The only one thing you can sell without actually giving it up: your experience.

Jeff

ROBITIN
—a *Potent* Plant Poison

¶This deadly poison is found in a common variety of tree.

By. Albert A. Hansen
Purdue University Agricultural Experiment Station

EARLY last Spring a farmer in Huntington county, Indiana, hitched his team of horses to a black locust tree during the noon hour. The same team had been hitched to the same tree a number of times before without bad results but for some unexplainable reason the animals on this particular occasion took a notion to chew the bark. A few hours later both horses acted as though they were suffering from exaggerated cases of colic, and Dr. H. W. Demsey, the local veterinarian, was consulted. Paralysis set in and the animals died. Dr. Demsey diagnosed the trouble as black locust poisoning.

Dr. C. M. Mix, a well known Delaware County, Indiana, physician, operates one of the best farms in the county near Selma and he has stocked the place with high-grade cattle. A year ago two of his cows became extremely ill, the most prominent symptoms being paralysis of the hindquarters. Last summer, July 1 to be exact, one of his best cows developed trouble, exhibiting similar symptoms and died ten days later. A short time after this a heifer went down and Dr. Mix was convinced that something was poisoning his animals. A survey of the farm for poisonous plants revealed the presence of a small grove of black locusts made up principally of large sprouts that had developed from a number of trees that were cut two years ago. The sprouts showed unmistakable evidence of having been grazed. The little locust grove was carefully fenced off and no more trouble has since developed.

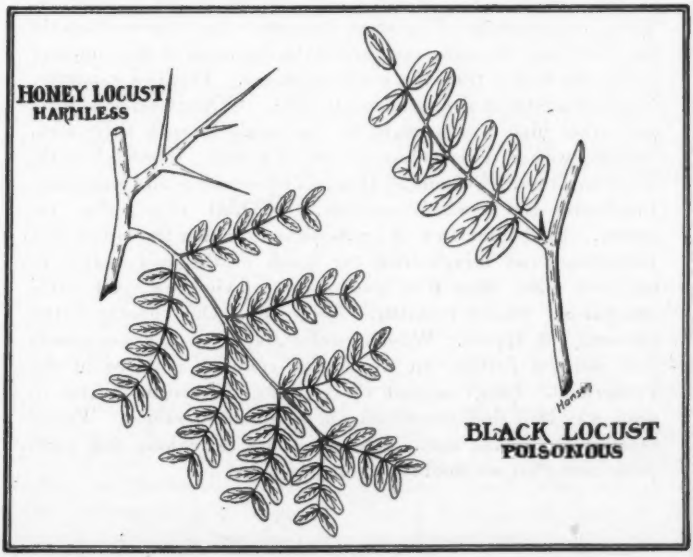
I can cite numerous additional examples of locust poisoning in Indiana—the case of Glen Sheline, of Columbia City, for instance, who lost three cows after they had grazed heavily on young locust sprouts. Then there is Fred Reasoner, another Delaware County farmer, who lost a cow, the only animal in the herd that had access to black locust sprouts. She died after exhibiting symptoms similar to those that characterized the sick animals on Dr. Mix's place.

A PROMINENT Hoosier veterinarian, Dr. D. K. Buzzard, reports the loss of four horses and four cattle in his locality from locust

poisoning. As a result of his experience, Dr. Buzzard has given us the following symptoms. "The symptoms in horses are colicky pains with irregular pulse and purging, followed later by inaction of the bowels, nervous depression and collapse." He further stated that the symptoms in cattle are "colicky pains, constipation, purging followed by irregular pulse, nervous excitement and vertigo bordering on mania.

"There is no certain symptom or series of symptoms," continued Dr. Buzzard, "since locust poisoning may easily be mistaken for other types of poisoning, hence in diagnosis we must rely largely on the history of the case."

The exact conditions under which black locust poisoning may take place are not known. It is reasonable to suppose that there is considerable variation in the poisonous properties of locust, otherwise the poisonous reputation of this common native tree would have been thoroughly established many years ago. I have also heard of cases where animals have grazed on black locust without harm. Some light is shed on the subject by the investigations of Tasaki and Tanaka, two Japanese scientists. They succeeded in isolating a powerful poison called robitin from the fresh bark of black locust. Horses were found to be far more susceptible to the poison than cattle since a toxic reaction was secured in a horse by the injection of 0.0015 of a gram of robitin while a cow required 0.02 of a gram before symptoms of poisoning were exhibited. Robitin must be mighty powerful stuff since the quantities noted are extremely minute. Since fresh bark contains approximately one per cent robitin, it isn't to be wondered at that the black locust is an unhealthful (*turn to page 44*)



Note the huge, branched spines and small leaflets of the harmless honey locust in contrast with the small spines and larger leaflets of the poisonous black or common locust.

Four Roads To Unity

By Dr. Frank Crane

EVENTUALLY the clash between the laborer and the employer and even the clash between rival nations will be settled by the simple human process of getting acquainted. ¶The one cure for War, which is always a struggle between artificial divisions of mankind, whether these divisions are political, or social, is the realization of our common humanity. ¶Anybody acquainted with history knows very well that no great issue wherein vast numbers of men were engaged upon opposite sides has ever been settled by one side gaining an entire victory over the other. Permanent settlement has always come by the two sides reaching an understanding one with the other. ¶The means of getting acquainted and getting together are simple. It is not a complex problem. It is just a plain human problem which requires heart and purpose. There are four great means of getting together. ¶First, eating. This is the essence of holy communion. It means recognition of the humanities. There are hundreds of business concerns where the workers do not even know the name and face of the chairman of the company or anyone higher than the works manager. This is a calamity. Non-acquaintance always makes trouble. ¶Directors, presidents and other high bosses ought to eat regularly with their men. Nothing we can do is so humanizing as eating. ¶Second, work. Work together. Cut out all this talk of employer and employee. Emphasize the word "co-worker." ¶Third, play. Play together. Find some sort of amusement in which the laugh of a Judge Gary can mingle with the laugh of the coal heaver in his steel mills, even if it is only at a movie show. ¶Fourth, patriotism. March together. Keep step. Our country is the one unifying appeal. We may differ about our religious creeds and political parties but we are all common children of the Fatherland. Don't neglect to celebrate the national fetes in some way that shall emphasize our common humanity. We are brothers under the skin. And it is only in making this truth prominent that we shall solve our problems.

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The FARMER *Is Finding* His Way Out

By *Arthur P. Chew*

of U. S. Department of Agriculture

Here are some encouraging facts for all who have faith in the farmer's ability to come back.

IT might be supposed, from the noise made about various current plans for helping the farmer by legislation, that he has given up trying to help himself. Nothing could be more untrue. Though farmers do feel pretty generally that the causes of their present difficulties entitle them to some consideration by the government, they are not folding their hands and waiting for Congress or the Department of Agriculture or any other public agency to dig them out of the hole into which they have fallen as a a result of the price-slump and the market shake-up of the last few years. They are digging themselves out.

They are achieving this result by altering their crop and livestock programs to suit changed marketing conditions, by broadening their enterprises so as to get a better seasonal distribution of labor and a fuller use of material resources, and by giving more attention to details of farm management. The trouble with American agriculture is that its different branches are out of proportion to one another. There is too much wheat and not enough flax, cotton, sugar, wool, mutton, and dairy cattle. Correcting this maladjustment is essentially the work of the farmers themselves, and they are going at the job with intelligence and energy.

EVIDENCE to back up this statement will be given you in a moment. Let us first see just how the readjustment problem presents itself to the farmer. Some people who should know better recommend mixed farming as a cure-all for the difficulties of agriculture. They imagine that when any crop ceases to show a profit, the farmers should immediately quit it, and spread themselves all over the agricultural map in their chase after the vanishing dollar. Practical

farmers know better. Mixed farming is not suited to all localities. Men have gone broke trying it out where the conditions demand specialization. The truth is that, while agriculture must be reorganized when it is not paying, the work cannot be done in a wholesale fashion, by hard and fast rules capable of being applied in all places in the same way.

"MIXED farming is not always and everywhere the right thing, for the reason that the types of agriculture which prevail in this country have been developed by a natural process of adaptation to local conditions," says Dr. W. J. Spillman, a crop expert in the U. S. Department of Agriculture. "Where mixed farming is practised, it is probably adapted to local conditions. Where it is not practised, the chances are that conditions are not specially favorable to it.

"In many states crops are grown today in the same proportions as those that prevailed many decades ago. What does this mean? It clearly means that those crops, by experimentation and experience, have been found better fitted than any other crops for the localities in which they are grown. Take wheat in the Northwest, for example, or cotton in parts of the cotton belt. Although wheat, as a result of low prices, and cotton from the ravages of the boll weevil, may yield but a poor return for the labor and capital expended on their production, the farmers have to keep on growing them because there are no alternative major crops to which they can turn."

But while types of farming are fixed in the main by permanent conditions of soil, climate, and markets, they are not absolutely rigid. Minor changes are always going on due to alterations in crops prices, in freight and labor costs, and in markets. Here lies the opportunity of the American farmer in the present situation. Conditions affecting agriculture have undergone more changes in the last few years than in any previous like period in our history. There is consequently a greater need than ever before for changes in types of farming. Wide-awake farmers fully realize this fact. They are studying the position and altering their plans to suit the circumstances, with the result that they are cutting losses and getting their farms back on a paying basis.

And now, to be specific, precisely what are the farmers doing? Well, in the first place they are cutting their wheat acreage prodigiously. There is a popular impression to the contrary, based on publicity given reports about the wheat surplus and on the fact that our wheat acreage in 1923 was still 24 per cent greater than before the war. As a matter of fact our wheat acreage from 1919 to 1923 was cut from 75,000,000 to 58,000,000 acres, and it will be cut more this year. It is being readjusted to meet the realities of the world situation with extraordinary speed.

EVEN in the spring wheat country, where crop readjustment is more difficult than anywhere else, wheat farmers are experimenting with other crops and are building up livestock enterprises. In the semi-arid regions of western North Dakota and eastern Montana, farmers have found that they can successfully grow corn on land which they have been accustomed to summer-fallow. As a result, they are growing (*turn to page 41*)

Corn on plot growing corn continuously

Corn on a five year rotation plot

¶These pictures, taken on the same farm show what can be done to improve a major crop by following a sound rotation plan.

One Farmer's Experience *with* Muck Soil

By C. I. Lewis

This farmer discovered how to raise potatoes profitably.

CHARLES MATSON is a successful farmer. His farm is located near Hales Corners, Wis. He is a typical, modern farmer, determined and progressive, who believes there is a cause for every condition; and when that cause is located, the condition can be regulated and adjusted as may be required.

That's why the muck soil of Mr. Matson's farm was converted into highly fertile land producing excellent, marketable potatoes.

Mr. Matson did not have the false impression which has handicapped so many farmers in the past. He knew that marsh lands did not contain all the necessary plantfoods. This fact he convincingly established by actual tests and demonstrations.

The dark, mellow appearance of muck soils is deceiving and one can scarcely believe that these soils are in need of any further ingredient to add to their richness and fertility. The generally discouraging and disappointing results in quantity and quality of crops, however, force the acknowledgment that muck soil lacks some essential element in its plantfood. This was the serious problem confronting Mr. Matson when he planned to grow potatoes on a 30 acre field of muck soil.

Mr. Matson knew that the rather wasteful practice of using manure on muck soils had not been found satisfactory. Manure does not contain a sufficient amount of potash and much of the nitrogen and phosphoric acid in the manure is not required by the plants, therefore, it is wasted. Since there is also a considerable amount of organic matter naturally in muck soil, the humus which the manure adds is likewise wasted.

The most prosperous farmers, Mr. Matson learned, apply the manure on the poorer up-land soils which really need the nitrogen, phosphoric acid and humus. The deficiency of potash, which is characteristic of all muck lands, is best supplied in a direct and economical way by the use of Sulfate of Potash or Muriate of Potash.

As the following description of the test which Mr. Matson undertook proves, muck land has greater possibilities when properly cultivated than almost any other kind of land.

NOW, although Mr. Matson was fairly certain that potash was the necessary element which would convert the muck soil into highly productive potato land, he did not accept what he had read and heard. Characteristic of the progressive farmer, he demanded actual demonstration of the value of potash be-

fore he would accept it as one of his farming practices. And this is how he did it:

He divided a part of his field which was uniform in soil and drainage into three equal-sized plats. These plats were laid off side by side, 175 feet long and 62 feet wide. All conditions were provided to make possible a fair and accurate comparison. With the same variety of potatoes, planted on the same day, and all plats receiving the same kind and amount of cultivation, this test was a fair, impartial and convincing demonstration.

Knowing that "raw" soil of this type was not favorable to growing potatoes, and that the use of manure generally resulted in inferior quality crops, although increasing the yield, the following test was made on the three plats:

No fertilizer was applied to Plat No. 1.

Fifty pounds of Sulfate of Potash was used on Plat No. 2. This is at the rate of 200 pounds per acre.

Fresh stable manure, about eight tons per acre, was spread on Plat No. 3. The contrast in effect on Plats No. 2 and No. 3 could thus be closely watched and compared.

The effect of potash in improving the quality and yield was very marked in this potato test. The potatoes and the culls grown on the potash plat were all clean, healthy and free from scab. They were high-grade, well developed, floury in color, mealy and of exceptional cooking quality. The potatoes on Plat No. 3, where manure was applied, were sadly lacking in these qualities—they were watery, dark in color, tasteless and scabby. The scabbiness can usually be expected when stable manure is used on a potato field.

When Mr. Matson contrasted the results of his experiment he had no further doubt of the advantage which the use of potash gained in increase of yield and better quality.

Two hundred pounds of Sulfate of Potash per acre, costing only $5.40, including freight, was directly responsible for a yield of 160 bushels of marketable potatoes and 52 bushels of culls. This yield was produced despite an extremely dry season. The latter part of August was hot and dry, and there was not sufficient moisture to mature the tubers. The accompanying table shows in detail the (*turn to page 39*)

Comparative yields on Mr. Matson's farm

No Fertilizer	*200 lbs. Sulfate of Potash*	*8 tons Fresh Manure*
20 bus. Culls	*160 bus. Marketable Potatoes*	*132 bus. Marketable Potatoes*

The Cooperative Idea

Part Two

By Charles J. Brand

Consulting Specialist in Maketing, U. S. Department of Agriculture

In the first part of this article published last month Mr. Brand told of the birth and growth of the cooperative idea in Europe. In this concluding installment he discusses the development of this idea in the United States.

THE Civil War, like the World War, left a train of ills in agriculture that produced deep suffering and discontent. This expressed itself in the so-called "Granger" movement. The National Grange or Patrons of Husbandry, still one of the greatest constructive forces in American agriculture, was established by Oliver Kelly of Georgetown, D. C., in 1867. In five years the organization had 500,000 members. It staked almost its all on the promotion of agricultural cooperation, particularly in the country we now call the "Middle West." It engaged in business operations on a wide scale, marketing farm products and buying groceries, lumber, coal, farm machinery, and many other things. Its growth was so sudden that leadership and managerial timber did not develop apace.

Ere long the cooperative structure it built up broke down and by 1885 it was scarcely more than a memory. Not more than a dozen enterprises are left today of the thousands that flourished briefly around 1872. Since that time the Grange has made for itself a secure place in American farm life and is wisely fostering community cooperation along sound business lines.

Some of the recent experiences of the American Farm Bureau Federation suggest a thoughtful consideration of the Grange's early experience. The hard times of 1889 to 1895 in the Middle West brought to life the Farmers' Cooperative Grain Elevators movement, and since that period cooperative marketing has grown apace.

COOPERATIVE associations in the United States are now doing an annual business of probably $1,500,000,000. In the last two years there has been a steady, and in some states, a spectacular increase in the number and scope of farmers' cooperative enterprises. Every state contains farms that sell more or less produce cooperatively. Reports to the U. S. Department of Agriculture indicate there are considerably more than 14,000 farmers' cooperative organizations in the country, which market from 10 to 15 per cent of the total produce sold by farmers.

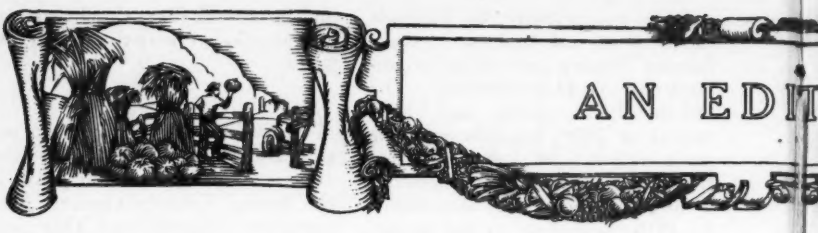
It is conservative to estimate the total annual business of these farmers' buying and selling organizations at $1,500,000,000. The billion dollar mark had been passed in 1919, according to the fourteenth census, and since then there has been a prodigious development of the cooperative movement. In 1919, according to the census figures, the farm value of commodities marketed and supplies purchased cooperatively was $806,599,308. This total left out of account the value added by the operations of the cooperative, in assembling, grading, processing and packing. Even at the most modest reckoning, this added value would carry the shipping point value over the billion dollar mark. A census taken now would have to include many large organizations that were not in existence in 1919, such as the large cotton and tobacco cooperatives of the southern states whose membership totals exceed all previous records. It would have to include many new organizations dealing in fruit, peanuts, rice, eggs, poultry, and dairy products. Although exact figures are not available as to the amount of business done by these new organizations, it undoubtedly runs into the hundreds of millions.

THE first state-wide cotton cooperative association was organized in Oklahoma in 1921. In two years it has grown to be one of the largest business organizations in the state. State-wide associations have since been formed in Mississippi, Texas, Arizona, North Carolina, Georgia, South Carolina, and Albama. These, with the exception of Mississippi, combined in a national organization known as the American Cotton Growers' Exchange, with headquarters at Dallas, Tex., and with the general sales office at Atlanta, Ga. They have an aggregate membership of more than 175,000 cotton farmers, and in normal years should control a production of more than 2,500,000 bales.

ANOTHER big cooperative organization which has sprung into existence in the last two years is the Burley Tobacco Growers' Cooperative Association. This was formed in the fall of 1921 on a non-stock non-profit basis under the cooperative law of Kentucky. It has more than 70,000 members, and controls about 85 per cent of the burley tobacco grown in Kentucky, Indiana, Ohio, Tennessee, and West Virginia. From January 1 to May 1, 1922, it received about 120,000,000 pounds of tobacco, and sold about 70,000,000 pounds. Market conditions were favorable during this period and the Association was able to secure prices nearly double those received by the growers in 1921. Other associations recently organized to market tobacco cooperatively are: The Dark Tobacco Growers, Hopkinsville, Ky.; The Tobacco Growers' Cooperative Association, Raleigh, North Carolina; The Connecticut Valley Tobacco Association, Hartford, Conn.; and the Northern Wisconsin Cooperative Tobacco Pool.

It is noteworthy that the recent cooperative movement in the south has given rise to a number of associations whose membership exceeds the record formerly held by the California Fruit Growers' Exchange. This organization has a membership of around 10,500, compared with 70,000 in the Burley Tobacco Growers' Association and more than 60,000 each in the two other tobacco associations. The state cotton associations have memberships running well into five figures. That of Oklahoma was 34,000 in its first year, and has since been increased.

Studies of the cooperative movement have been made for the last ten years by the (*turn to page 44*)



THE HIGH COST OF POLITICS

BETTER CROPS is not a forum for politics. Its pages are devoted to the useful and constructive purpose of supplying a medium to agricultural workers for an exchange of their ideas and experiences to the end that our farms may produce bigger and better crops. Therefore, it has no room for politics.

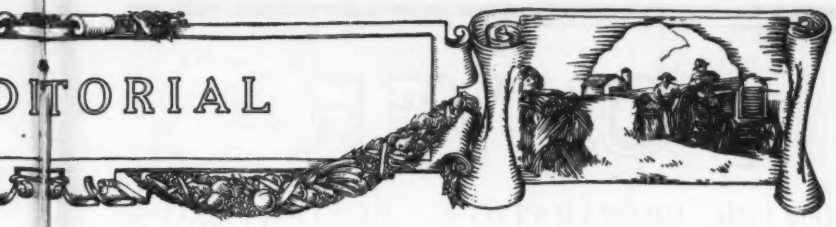
While politics may serve some useful aim, unfortunately out of a sea of talk, there arises the reef of "no action" to bar the way. The ship of progress is overwhelmed in this sea of talk, and the much needed relief arrives too late or never comes at all.

As this lack of action on agricultural problems and the tendency to play politics on the tax question adversely affect the farmer and his prospects for better crops, it is well within the province of BETTER CROPS to consider the question of the wasting of the funds of the public treasury, its resultant increase of taxes, the disinclination of politicians to inaugurate old fashioned economy and the possible and much needed relief in the form of tax reduction.

This is a non-political question, although it has been conducted as if it were of no concern to the tax payer except so far as it can be used as a piece of buncombe with which to catch his vote.

But, strange as it may appear to the so-called master minds controlling our destiny, it has more than an academic interest to the farmer and his prospects for better crops, and it has an interest beyond that of the mere figure on his income tax return. In these days of scientific cost accounting, there is forged into every plow share a certain per cent of an alloy called taxes; into the fabric that goes to make up his clothes there is woven the unpaid tax of some unnecessary tax exempt bonds of which the farmer never heard; every ton of high analysis fertilizer that he spreads upon his fields contains a certain number of pounds of the invisible filler called taxes and so these invisible items of tax directly increase costs, and tend to restrict the purchasing power of the farmer's dollar.

But all this has been told elsewhere, much better told, with figures to show "whither we are drifting." "Give us relief" is the cry. From those in a position to afford the relief, comes the promise of tax reduction, but the promise is fulfilled with catch-wordy speeches and further proposals



to spend the public's money through bills favoring some special interest at the expense of all others. Both speeches and proposals are dictated by the desire for re-election and nothing else. And from this high cost of vote-getting comes the high cost of living.

The readers of BETTER CROPS having come patiently thus far along this too well known path will ask the question "where do we go from here?" This is the question for which I have been waiting in order to offer the following suggestion.

Look up the record of every man or woman in your district who is or has ever made a bid for office and especially of those now holding office. Classify them under one or two headings, Savers—Spenders. In one column place those who consistently prevented the squandering of public funds, the creation of unnecessary offices and the passing of appropriations for special interests or doubtful necessities. In the other column, those who did just the opposite. Pay no attention to what was *said* by those in either column. Judge them only by what they *did*. If you find they loudly proclaimed the necessity of having all income taxed and no securities tax exempted, consider their talk as being sound, but find out if they made any active move toward subjecting themselves to taxation by removing from the statute the clause exempting officials from income tax. If you find any of them against special appropriations of public funds for the benefit of interests that do not give them votes, find out whether they have assisted in passing appropriations for other special interests which *can* or *did* give them votes. Just remember that whether it is for your special benefit or for the benefit of interests far away, *you pay the bill.* It is *your* money they are spending; it is *your tax bill they are increasing.*

When Mr. Office Seeker comes around in the old flivver to line you up for the next election, never mind the fine talk. Consult your form sheet and see if he is in the column marked "Savers." With this chart before you, do the obvious; eliminate the weeds for a better crop of men.

By reducing the high cost of politics, you can buy everything required to produce better crops generally. Reduce the high cost of public looting and the high cost of living will take care of itself.

E K Hoyt

President, Better Crops Publishing Co.

OLIVER

BETTER PREPARATION — BETTER CROPS

One acre of ground properly prepared for seeding is worth two acres that is deficient in available plant food and that is full of clods and air spaces.

Preparation of the ideal seed bed involves an application of the proper fertilizer, if the soil is deficient in any of the available plant foods, and in properly discing, plowing and firming the soil until it is uniform from surface to subsoil.

Before plowing use the disc on the surface, cutting all trash and mixing it with the surface soil. This will eliminate clods and air pockets. Next plow the land, using a combined rolling coulter and jointer, so that all weed seeds and eggs and larvae of insects may be laid on the bottom of the furrow. Then, as a final preparation, use disc and pulverizer in pulverizing and firming the soil.

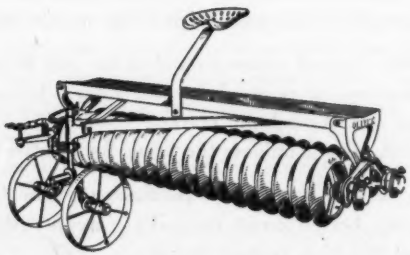
The result will be a seed bed that will be the greatest asset to the farm and to the farmer.

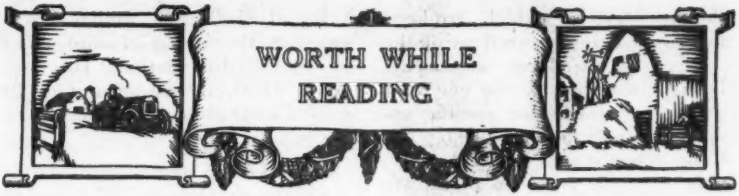
OLIVER MANUFACTURES THE CORRECT IMPLEMENT FOR EACH PHASE OF SEED BED PREPARATION

OLIVER CHILLED PLOW WORKS

Plowmakers for the World

South Bend, Indiana





The Probable Trend of Farm Prices

The usual discussion of this subject is a mass of glittering generalities and unsupported assertions. It is refreshing, therefore, to have an economist of Dr. Warren's ability and equipment sweep aside the superficialities and deal directly with the realities of the problem.

After a brief discussion of some of the more important factors affecting the price of farm products, Dr. Warren gives his opinion that "the general tendency of prices for the next ten to fifteen years will be downward and that prices will closely approach or possibly go below the pre-war basis."

"If this should be correct," continues Dr. Warren, "the status of agriculture can be forecast with a high degree of accuracy." He then proceeds to summarize nineteen of the more important results that would follow. Space does not permit us to quote this entire section which is extremely interesting but we present some of the salient points which should be of especial interest to the readers of BETTER CROPS.

"Great care will need to be exercised in buying anything that is much above pre-war prices unless it will pay for itself quickly."

"Those who are engaged in personal industries such as farming will work harder and increase the output per worker because no matter how low the prices, the more the individual has to sell the more he gets. The farmer is a "piece worker."

"Prices paid to farmers will be low relative to retail prices. These differences will probably not average so extreme as at present. The advantages of raising home food and feed will be greater than normal, as will the advantages for those farmers who can cut around some of the channels of trade by retailing, reaching wholesale dealers and the like."

"Cooperative associations will be subjected to severe strain both because of business conditions and because of general farm discontent. They should be careful about reserves."

An Attempt to Forecast the Future Trend of Farm Prices by G. F. Warren, Cornell University, Ithaca, New York. Reprinted from the Journal of Farm Economics, January, 1924. B. H. P.

How Bankers Are Aiding Farmers

In *Our World*[1] for March, 1924, Walter W. Head, President of the American Bankers' Association, gives an excellent analysis of the situation from the standpoint of the financier: he indicates ultimate remedies and, moreover, shows that they are believed to remedy the disease,—not merely to relieve symptoms, and asserts that they will also tend to prevent a return of the trouble. Speaking of the Agricultural Commission of the Association—under the chairmanship of Burton Smith of Wisconsin, he says:

"This commission has twelve federal reserve districts.

"The commission is conducting a series of conferences throughout

the country, at which bankers, farmers and representatives of the Agricultural Colleges are being brought together, to the end that definite programs for specific co-operation may be developed. The Commission is studying and analyzing economic problems pertaining to the farm for joint benefit of farmers and bankers and, at the present time, it is lending its support to legislation pending in the Federal Congress for increased appropriations for agricultural experiment stations. . . . Agriculture, as I have said, is fundamental. Agriculture is a business subject to the same forces, subject to the same principles as any other business . . . . we act accordingly, agriculture will be placed upon a foundation sufficiently firm and strong to endure all adversity."

[1]*Our World, 9 East 37th Street, New York City. Single Copy, $0.25.*

A. L. M.

Better Flaxseed Production

An excellent bulletin on this crop has recently been issued by the North Dakota Experiment Station. It discusses the importance of using good flaxseed, varieties resistant to wilt, where best to grow flax and flaxseed production and consumption. It is brief, well-written and well illustrated. The increasing importance of this crop and the fact that, for the past two years, it was one of the few grain crops that was generally profitable, give this bulletin more than usual interest and significance.—*Better Flaxseed Production by T. E. Stoa, North Dakota Agricultural College, Circular 23, February, 1924.*

B. H. P.

Making Sure with Fertilizer

Maurice Lux, of the well-known corn-growing family of that name, living at Shelbyville, Indiana, was awarded the junior championship at the 1923 International Hay and Grain Show, for his exhibit of 10 ears of corn grown and selected by himself.

Commenting on his methods, he made this statement, "As I was in school, I had nothing to do with preparing the seedbed, but the ground was clover sod. This is a mighty good place to grow corn, because of the fertility; but I further made sure of a good yield by using 75 pounds of commercial fertilizer. This tested 6 per cent potash and 12 per cent phosphoric acid."

Maurice grew 101.5 bushels of corn on his contest acre, at a cost of 36 cents a bushel.

Increasing Fertilizer Applications

According to Dean R. L. Watts, Pennsylvania State College, there is a distinct tendency among the most successful market gardeners to increase their applications of fertilizer to the various crops. This is even true of tomatoes.

There can, of course, be only one reason for this. The growers feel that by stepping up their fertilizer applications, they can produce sufficient crop increases to cover the extra expenditure and to provide additional profits.

There is, doubtless, a point beyond which, it will not pay to increase the fertilizer charge for any crop. Just where that point lies may best be determined perhaps, by the growers themselves. Increased attention to all details connected with the growing of the crop will have much to do with insuring a proper return for extra money laid out for fertilizer.

(NOTE: Name given is of county unless otherwise noted.)

I thought our readers would be interested in seeing the projects of County Agents for the coming spring and summer, so I invited them to outline their plans. Here is the first batch of answers. It's mighty interesting, too.

Purebred sire campaign; clean-up campaign against Tuberculosis in cattle. Forage crops demonstrations; soy bean projects both as a legume and as a hay and grain crop. Fertilizer demonstrations with corn, alfalfa and wheat. Home project for farm women (Sewing). One hundred and fifty boys and girls in club and at club camp. Educational campaign on cooperative marketing.—*J. R. Meeks, Parke, Ind.*

We are planning to do considerable work with poultrymen this year. Our program calls for the construction of at least five new poultry houses (semi-monitor type recommended by the extension service for Nevada conditions); establish five accredited flocks, five culling and feeding demonstrations. We are starting seed certification work this year. Beef cattle grading demonstrations, potato improvement, cereal and forage variety tests and silage crop tests are other projects we will work on. —*Thomas Buckman, Washoe, Nev.*

Have organized a 40 acre corn contest. Have organized a Holstein Breeders Association with all members testing. Have for slogan "Sweet Clover or Alfalfa on every farm in Adams County." To have at least four sources of income on every farm. (Grain, cash crop) (Cows, poultry and garden, living crop) (Hogs and corn, mortgage lifting crop) (Forage for man and beast, saving crop).—*P. J. Gwyther, Adams, N. D.*

Orchard spraying demonstrations. Soil acidity testing and liming. Baby Beef Calf Club. Pure Bred Gilt Club. Five months Clothing Training Schools. Three day millinery training school. Hog Cholera Vaccination School. Poultry Culling and Selection Dem. Cooperative Wool Marketing.—*F. C. Kingman, Taylor, Iowa.*

Organize our fourth C. T. A. and add two additional blocks to the Bull Ass'n. Excavate 1,000 yds. of Marl to be ready for use in spring of 1925. Have 50 acres of certified seed corn. One check acre of alfalfa to illustrate the value of good seed and show the results of imported seed. Five stone blasting demonstrations using the war salvage explosive "Sodatol." Two pruning demonstrations.—*C. L. Bolander, Livingston, Mich.*

Work like ——.—*R. F. Freeman, Ramsey, Minn.*

Replace as large a per cent as possible of the oat crop with soybeans for hay, plant a large per cent of our corn acreage with improved seed, use acid phosphate with corn as a demonstration, feed balanced rations on many farms to produce a ton of pork in 180 days, from one sow. We are in the clover and prosperity contest to win and get a rational proportion of our cultivated lands in legume crops. Boys and girls feeding 24 calves for the Northwest district show. We won last year on Herefords.—*Ross Nichols, Plattsburg, Mo.*

Trying to improve the crops by the livestock method. Commercial fertilizers haven't found their way in this part of the state to date, but with the decrease in soil fertility they are sure to come. Dairying seems to be the biggest item with our farmers. The south half of the county is going in for Holsteins. Have a bull association with four of the best bulls in Kansas. Just lined up a cow testing association with twenty-eight members. Always assisting the dairy men with feeding and breeding problems.—*John V. Hepler, Washington, Kansas.*

Double our acreage of Soy Beans. Double our acreage of Alfalfa. Triple our acreage of Sweet Clover. Organize a Dairy Calf Club. Form at least one Cooperative Bull Association. Increase our milk cow population.—*Roy E. Gwin, Cherokee, Kansas.*

HAMMOND'S
Cattle Comfort

Keeps flies off. Makes cows more comfortable — they give more milk.

Write for Information

HAMMOND'S PAINT & SLUG SHOT WORKS
Beacon, N. Y.

Hammond's Slug Shot

Used from Ocean to Ocean

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices.

Sold by Seed Dealers and Merchants.

Send for Pamphlet Worth Having

HAMMOND'S PAINT & SLUG SHOT WORKS
Beacon, N. Y.

One Farmer's Experience with Muck Soil

(*From page 29*)

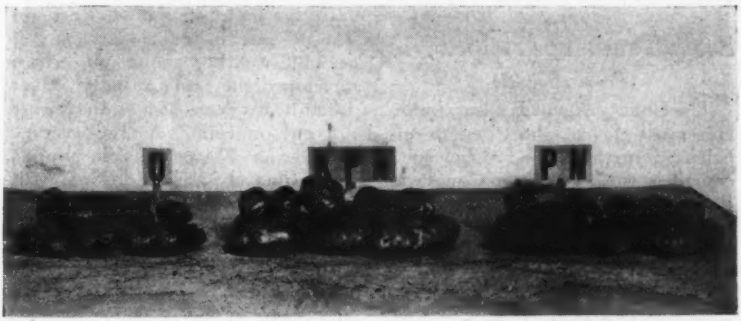
Financial Statement

Fertilizers Applied and Rate Per Acre	Yield Per Acre in Bushels and the Gross Value of Crop				Value of Increased Yield over that of Unfertilized Plat for Total Crop	Value of Fertilizer Per Acre at Rate Applied	Net Returns from Crop after Deducting Value of Fertilizer	Net Return for Each Dollar Spent for Fertilizing
	Marketable		Culls					
	Yield in Bushels	Value at 50c Per Bushel	Yield in Bushels	Value at 15c Per Bushel				
Plat 1. No Fertilizer.....	0	$ .00	24	$3.60	.....	.....	.....	.....
Plat 2. 200 pounds Sulfate of Potash...	160	$80.00	52	$7.80	$84.20	$5.40	$78.80	$14.59
Plat 3. FreshStable Manure, 8 tons....	132	$66.00	40	$6.00	$68.40	$17.44*	$50.96	$2.92

*Note.—Chemical analysis shows that a ton of average fresh stable manure contains approximately 10 pounds of Nitrogen, 5 pounds Phosphoric Acid, and 10 pounds of Potash. Conservative commercial estimates of the value of such manure based on the plantfood elements alone gives a total value of $2.18 per ton. This valuation, however, does not represent the full agricultural value of the manure when applied to soils that are deficient in humus.

results of the test and leaves no doubt as to the proper, economical treatment of muck soil for potatoes. A study of the yields in both quantity and quality of the tubers from the three separate plats very plainly answered the question of soil treatment for Mr. Matson.

When Mr. Matson compared Plat No. 1 where no fertilizer had been used, and Plat No. 2 where potash was applied, he saw where a decided loss on one plat had been turned into a handsome profit on the other. Twenty-four bushels of inferior quality culls, which did not



No Fertilizer *Complete Fertilizer Including Potash* *Incomplete Fertilizer Without Potash*

Note how sulfate of potash improved the size and quality of these potatoes raised on muck soil in Pawpaw, Michigan.

even justify the digging resulted from Plat No. 1, in comparison with a net profit of $78.80 from Plat No. 2 on which $5.40 worth of potash was used. The business man who can make $14.59 from each dollar he invests, has a profitable investment in his possession. Mr. Matson made profits out of his much land by the use of potash.

Mr. Matson's theories in favor of potash were further strengthened when Plats No. 2 and 3 were contrasted, which revealed the comparative value of potash and of stable manure upon muck soil. Eight tons per acre of manure were used on Plat No. 3. The estimated value of this manure is $17.44. (The foot-note on the table explains how this estimate is made.) This application of manure naturally showed up favorably in contrast with the unfertilized part of the field, designated as Plat No. 1, but it quickly loses its standing when compared with Plat No. 2. This latter plat, for each dollar of potash applied, gave a net return of $14.59, while each dollar's worth of manure applied gave a net return of only $2.92.

After studying the results of this demonstration, one can well understand Mr. Matson's enthusiasm when he talks of and strongly advocates the use of potash on muck soils where potatoes are to be grown.

Books That Have Helped Me

(*From page 21*)

The County Agent is a busy man. He must learn short cuts,—efficiency methods,—a very good course is the "Purinton Course in Personal Efficiency" by the Independent Corporation, New York.

But with all the multitudinous duties a County Agent needs to look to the future and refresh his mind. "The Farm Bureau Movement" by Kile—Macmillan Co., the "Community Leadership" by L. W. Wilson, and the new book by Burritt, "The County Agent and the Farm Bureau," give him a grasp of the fundamentals on which the Farm Bureau rests.

Undoubtedly marketing, transportation and credit will occupy an important place in the agriculture of tomorrow. The new book by Steen, "Cooperative Marketing" published by the A. F. B. F. is the best. Ivan Wright has an excellent new book discussing the credit problem very thoroly, "Bank Credit and Agriculture," Lightner Publishing Corp., Chicago.

The question of business takes considerable time, but one's mind will be fresher from reading books that give an inspiration, a new zest to life. Douglas Fairbanks, "Laugh and Live" is such a one. Roosevelt's Autobiography is another. "The Making of an American" by Riis, "The Religion of Main Street" by Dr. Grant are also good.

These books have helped me during the past three or more years in getting a clear grasp of the present agricultural problems; in preventing me from becoming a grind; and in helping me to be a better Agent and a happier man.

He Took Up Farming

(*From page 7*)

At the same time not all of the cauliflower that could have been harvested was harvested. This is entirely due to the fact that the son was new to the work and a streak of hot weather came on which developed the heads rapidly. Over 1,000 heads were lost as they were not cut on time. As the average price was $3 per dozen heads, approximately $250 additional were lost.

The foliage from the field was fed to cows. No records were kept of the value of this foliage but the boy stated frankly that he would place the value at not less than $50. This should be added to profits above cost.

Show the boy a "profit in farming and he will stick."

The Farmer Is Finding His Way Out

(Continued from page 26)

feed and raising hogs and cattle, instead of sticking to a one-crop system.

In North Dakota there is a well marked trend toward diversification. No state in the union is more misunderstood than North Dakota. Its farmers are supposed to be obstinately committed to one-crop farming—to mining the land for wheat. True, there is no major crop which could be sown in place of wheat in North Dakota. But the state can raise livestock and the farmers know it.

Statistical proof is available. A movement away from exclusive wheat growing had started in North Dakota before the war. Wheat growing was declining and livestock raising was on the up-grade. Farmers were growing feed and forage crops more than formerly. The war temporarily stopped this process. From 1917 to 1919 beef cattle and hogs in the state decreased, milk cows just held their own, and corn acreage decreased. But the movement has now been resumed. Wheat acreage is once more declining, corn acreage is increased, and there is a steady gain in the number of hogs and cattle on the farms.

Thousands of farmers in North Dakota and in the other spring wheat states are turning part of their wheat acreage into flax. At present prices, flax is a highly attractive substitute crop. High cash returns from flax in 1922, contrasted with low wheat returns showed farmers they had been overlooking an opportunity, and as a result the flax acreage in 1923 was 2,300,000 acres compared with 1,300,000 acres in the previous year. Yet the increased flax production did not hurt the flax market. Flax rose from $1.88 a bushel in 1922 to $2.12 in 1923. It is possible to increase the flax acreage still more without danger of breaking the price, because we import half our flax, and there is a duty on it of 40 cents a bushel.

Sheep raising is helping thou-

A scene in North Carolina which indicates that a diversified programme of farming is gaining in popularity. The hogs are grazing a pasture of soy beans grown with corn.

sands of farmers to make a profitable readjustment of their enterprises. Two thirds of our sheep are still raised on the range, but the farm proportion is rapidly growing owing to several factors. One, of course, is the high price of sheep and wool. Sheep rose last year from $4.80 to $7.50 a head in average farm price for the entire country; wool rose from 29 cents to 38 cents at the farm. Another thing that is helping the farmer who raises sheep in the middlewest and the eastern states is his proximity to markets. Since lamb and mutton came to take a dominating place in the sheep industry, quick transportation to consuming markets has given the farmer-sheep man an advantage over the range operator.

All the crop readjustments farmers are making cannot be mentioned in a short article. It is possible to cite only a few. In prosperous New England, where farmers have specialized in dairying and 70 per cent of the land is in hay, there is a drift toward raising garden truck, poultry, and feed grains. A generation ago New England was driven out of small grain production by the competition of the west. But high freight rates and land values are now weakening the competitive positions of the western feed-raiser. It is once more profitable for the eastern farmer at least to grow feed for his stock, and he is beginning to do so.

In some parts of the cotton belt, there has been over-specialization in cotton. Farmers are breaking away from this system, at least to the extent of growing fruits and vegetables for their own use. On the other hand, along the northern edge of the cotton belt agriculture has been too much diversified. Farmers there have a choice of so many enterprises that some of them have tried to grow corn, wheat, hay, cotton and tobacco at the same time. They are tending now to concentrate on one or two crops. In the tobacco districts there is a tendency to grow some cotton, since tobacco production is possibly overdone. In the south, where climatic conditions make the fight against the boll weevil exceptionally hard, farmers are turning to the production of farm maintenance crops, velvet beans, peanuts, other forage crops, and pasture.

The peanut crop is coming to be the basis of an important livestock industry. Moreover, peanut oil can be substituted for cocoanut oil in all of its uses. As we import large quantities of cocoanut oil, soy-bean oil, peanut oil and other vegetable oils, the peanut growers, in regions where cotton will no longer thrive, have an opportunity to serve industry as well as agriculture. In the corn belt the soy-bean crop is coming into favor at a rapid rate. In the same territory wheat acreage is being put into corn, because corn at last year's prices was worth just about twice as much per acre as wheat.

This does not by any means exhaust the list of the changes farmers are making in their production plans to conform with the altered market situation brought about by the war and its consequences. They suffice to show, however, that the agricultural situation is undergoing steady and thoroughgoing readjustment, not by spectacular methods involving big changes in major crops, but in a thousand minor ways whose aggregate effect, in the long run, is bound to be enormous.

Good Work!

Dear Jeff:

Marshall County is the Home of the Jersey Cow in Tennessee, in other words the "Jersey Isles of the South." The government found only 23 tubercular cattle in an area test covering the county and all these were found on one farm, having contracted the disease from a purchased bull. Since that time Marshall County has had almost constantly buyers from other states within its borders. In one week last year eight cars of Dairy cattle were shipped out to other states.

The county now has two cooperative creameries, one of which has been running about ten years and is now making about 250,000 lbs. of butter annually and of a quality that sells in the most discriminating markets of the United States grading better than 92 per cent. Last year we succeeded in getting another Cooperative Creamery which cost around $17,000 and in seven and a half months time manufactured 240,000 lbs. of butter and paid off $5,000.00 of the cost in addition to satisfying its customers with the price received for butterfat. This second creamery has just installed a cooperative feed grinder which crushes as high as 15 wagon loads of corn per day for the patrons as well as loads of bean hay and other rough feeds.

This year we have organized a Farm Bureau with 160 members paying $10.00 per year per member for a period of five years and expect this organization to reach at least 200 members during the year. Through the Farm Bureau we have pooled orders and bought 1,220 bushels of Soy Bean seed and 110 tons of fertilizer and we expect to increase these orders materially as spring approaches.

Last year we introduced cotton as a cash crop in the county getting 1,200 acres of the crop. This acreage will probably be doubled this year and ginning facilities for the crop will be installed. This year we are pushing soy beans as a hay and cash crop. We are introducing the Laredo soy bean in the county and will have about 600 acres of the crop grown, but will have to write our Laredo bean story for another issue.

We have just started cooperative shipping of eggs through one of our creameries.

We will hold cooperative lamb and wool pools. We expect to carry practically all our demonstration work on in eight organized community centers where monthly meetings are held to discuss these demonstrations and other community plans. Only last week one of these community centers had 300 present at a social program at which an Old Fiddlers Contest was held. Fifteen fiddlers competed. There were also banjo pickers, guitar, harmonica and ukulele players on the job. These Community Organizations plan the demonstration work which they desire to have carried on in their communities.

Finally we might add we are growing by cooperation and that our plans are embraced in that word.

W. A. Haynes, County Agent
Mar. 17, 1924. *Lewisburg, Tenn.*

The Cooperative Idea

(*From page 31*)

Department of Agriculture. It is now engaged in a survey which is expected to make these studies more valuable. It is preparing a list of all the cooperative associations concerning which particulars can be obtained, and is classifying them according to whether they are capital stock or non-stock organizations; whether all members are producers; whether stock or patronage dividends are paid; and whether they are buying or selling organizations. The data are as yet incomplete, but some of the leading facts of the situation may be given.

There are, it appears, about 5,000 cooperative grain elevators in the country, with more than 600,000 members. Most of them are in the north central grain-growing states. Grain growers in Idaho, Montana, North Dakota, Oklahoma, Texas, and Washington have formed state-wide marketing associations. Attempts to federate them are being made. One of the most successful of these agencies is the Northwest Wheat Growers Associated, of Portland, Oregon, which in 1921 marketed 15,000,000 bushels of wheat for farmers in Washington, Oregon, Idaho, and Montana. There are said to be more than 4,000 livestock shipping associations in the United States, with about 1,000,000 members. Cooperative marketing of dairy products is well established in Minnesota, Wisconsin, New York, Pennsylvania, Ohio, Illinois, California, and Maine. Minnesota leads in cooperative marketing of dairy products. In Wisconsin a single cooperative association receives cheese from 200 factories, and does an annual business of more than $4,000,000.

Rapid progress is being made in the cooperative marketing of fruit. In this branch of cooperation, the Pacific Coast states lead. One of the largest fruit shipping association in the country is the California Fruit Growers' Exchange, of Los Angeles. Its receipts for fruit shipments in the last twenty years have been approximately $550,000,000. In 1920 it handled 73 per cent of the citrus fruit crop of the state. The success of the Pacific Coast cooperatives had led to the formation of fruit cooperative marketing organizations in Florida, Georgia, Illinois, Michigan, Missouri, and New York.

Robitin

(*from page 23*)

diet for cattle and horses. By the way, the reaction secured by the injection of the robitin was similar to that produced by eating the fresh bark.

The chances are that the sprouts and new growth are the dangerous parts of black locust. The bark of mature trees is pretty tough and is not only difficult for animals to strip off but probably contains less of the dangerous glucoside.

Black locust is also poisonous to the human animal. The classic example of this happened a number of years ago when thirty-two boys from the Brooklyn Orphan Asylum took a hike through the country, chewed locust bark and the whole outfit became seriously ill, although all recovered. The outstanding symptoms were dilated pupils, feeble pulse, severe vomiting and death-like palor.

Black locust, the dangerous plant, should not be confused with honey locust, a harmless species. Honey locust, in spite of its alluring name, is equipped with huge, vicious-looking spines while the common black locust has smaller spines and larger leaflets.

Food from Sunflowers

(*From page 18*)

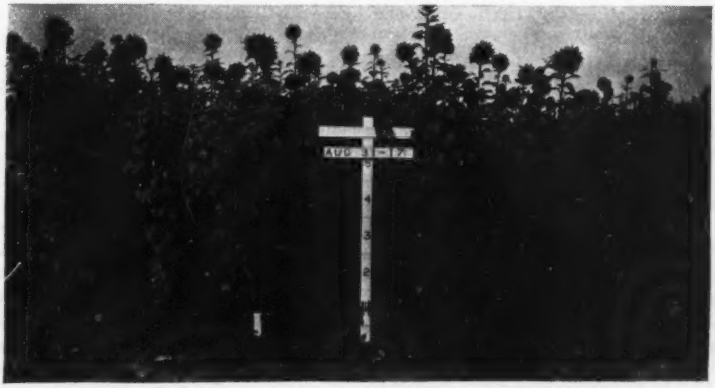
in 1921 while sunflower silage commanded $5.00 per ton.

Just across the Nevada line in Lassen County, California, under similar climatic and soil conditions excellent results have been obtained with sunflowers. A. F. Babcock in Big Valley, at an altitude of 4,000 feet, secured a yield of fifty-four tons of sunflower silage in 1922. Another portion of the field yielded forty tons of silage per acre which is certainly an enormous yield and makes it by far the cheapest dairy feed which can be grown in the locality although alfalfa also grows here luxuriantly.

The Washington Experiment Station in 1919 obtained a yield of thirty-six tons of sunflowers for the silage as compared with fifteen tons of corn. At Sand Point, Idaho, where the altitude is too high for successful corn production, yields of twenty tons of sunflower silage per acre have been obtained by farmers of that region.

In Wyoming, Marion P. Wheeler grew the Mammoth White Sunflower in 1918 and 1919 and tried to feed them in the dry condition to stock but with very little success. In 1920, 1921 and 1922 he raised sunflowers for silage purposes. The sunflowers were mixed in the silo with silage corn in about equal parts. The sunflowers were cut just as the seeds were ripe enough to begin falling. The ensilage produced was fed to dairy cows and they ate it clean. He reported that the sunflowers yielded twice as much per acre as corn and when properly put in the silo the stock ate it readily and clean. When the cows were fed too much, some of the ensilage mixture was left but it was always the corn leaves which were left and not the sunflower leaves. He believes it to be a more profitable feed to raise for ensilage than corn under his conditions in Wyoming. The Experimental farms in Wyoming have fed straight sunflower silage and straight corn silage and found that the dairy cows do one or two per cent better on corn silage than they did on straight sunflower silage.

In Alberta, Canada, in 1922 it has been estimated that over one thousand farmers grew sunflowers for silage purposes and over ten thousand acres of sunflowers were grown.



This gives some idea of the large yields that can be secured from sunflowers.

The harvesting of the sunflower is carried on in the same manner as corn harvesting for silage. The stalks are cut either by hand or by a row binder and then bound. The best time to harvest is when sixty per cent of the heads are in bloom, as the flow of juice from the ensilage plant is less at that time.

The sunflower ensilage is dark brown in color, and when properly harvested resembles corn silage in texture. The odor is resinous and sour which is its chief objection. Some experiments whereby the silage has been treated with sour buttermilk are reported as producing a sweet smelling silage. This practice, however, is probably not of much practical value as the palatability is not improved in the least. Some reports indicate that sunflower silage is not at first relished by cows as readily as corn silage, further, that more cows "go off feed" when kept on a ration of sunflower silage. Other reports indicate that it is equally as palatable as corn silage. The results practically all agree that the best results are obtained when corn and sunflower silage are mixed. In Canada excellent results have been obtained when oat straw is added to the silo with the sunflowers in the ratio of one-fourth oat straw to three-fourths of sunflowers. All reports agree that corn silage alone is slightly better than sunflower silage alone.

Chemical tests have shown that sunflower silage contains a slightly higher per cent of fat and protein than corn silage but a lower carbohydrate content. The digestibility of the sunflower silage is not so good as that of corn silage.

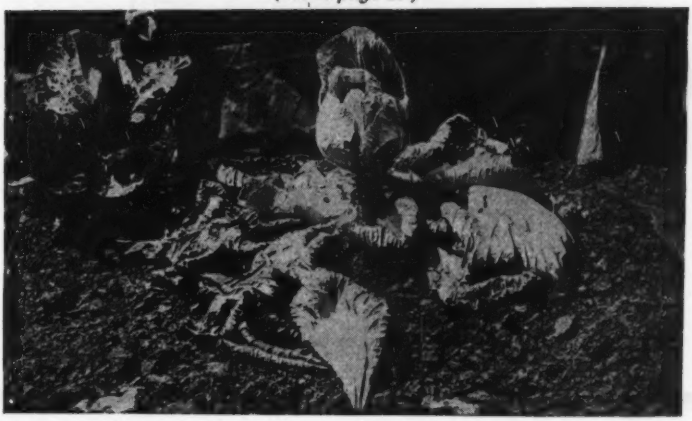
The Washington Station found that sunflower silage contained 12.6 pounds of total digestible nutrients per hundred pounds, while the Montana Station found 12.2 pounds per hundred pounds. Well matured corn silage should contain about 17.7 pounds of total digestible nutrients per hundred pounds. The Montana Station also reported that from 283 to 375 pounds of sunflower silage was equal to one hundred pounds of alfalfa hay. On the same basis it is probable that 320 pounds of corn silage would equal one hundred pounds of alfalfa hay.

There is thus considerable discrepancy in the opinions of experimentors regarding the feeding value of sunflower silage. This is undoubtedly due in a large measure to varying results which have been obtained in getting a palatable silage from sunflowers. This was decidedly the case at the Washington, Nevada, West Virginia and Wisconsin Colleges. The Pennsylvania and Michigan stations also reported that sunflower silage was less valuable than good corn silage. The results so far reported indicate that sunflower silage is probably ninety per cent as valuable as corn silage. In regions where corn does not properly mature for silage this is an important consideration.

It is quite evident that the sunflowers will produce big yields under soil and climatic conditions where corn is not well adapted. Sunflowers as a silage crop probably will never replace corn as a silage crop where climatic conditions are suited for corn production, but there are large areas in high altitudes and northern latitudes where corn will not thrive and where sunflowers will produce abundantly. The excellent yields under these conditions more than offset the slight inferiority of the sunflower silage. The future may also show that the admixture of the sunflowers with other material such as oat straw will eliminate this slight inferiority in the ensilage from sunflowers. Sunflower silage is destined to furnish the farmer in the future with an excellent source of cheap, succulent feed for the production of milk, butter and beef, and thus increase the production of human food at a greater profit to the producer.

Putting Cabbage Back in the Garden

(*From page 15*)



Here is the disease—cabbage yellows—whose eradication is explained in this article.

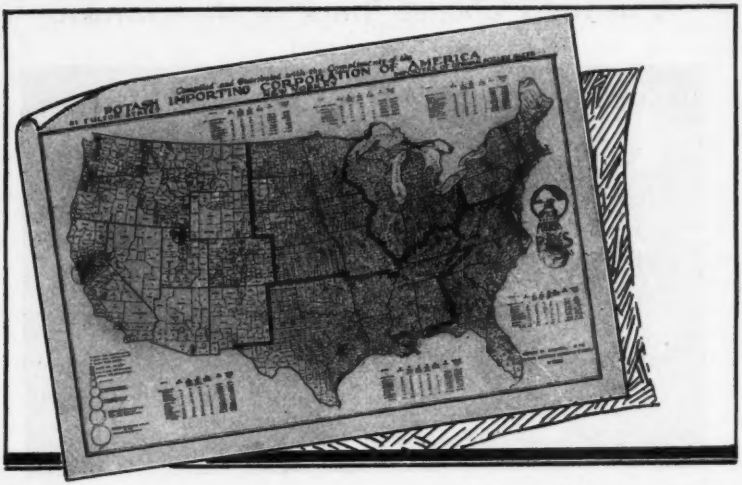
their cabbage crops. During this time one of their number, Jacob Goepper, has developed a yellows resistant variety of his own. While the other gardeners have been struggling to get a crop he has been raising good cabbage every year. His neighbors soon came to realize that there was something different about Goepper's cabbage and have used it whenever they could get the seed, which was not very often. The vegetable growers association at Indianapolis has taken hold of the matter and have arranged for a considerable quantity of this seed to be raised.

The county agents like this project because the results are certain and the interest in cabbage is very general. It gives them a chance to be of service not only to farmers but also to the city gardeners as well. It does not require any elaborate preparation nor does it entail any change in common practices of the grower. He simply has to get some of the true yellows resistant seed.

Potash Makes Muck Land Profitable

One may safely say that crops cannot be grown profitably on muck or peat lands until potash has been supplied to them in generous quantities. These lands are of vegetable origin, most of them containing possibly ten times as much ammonia as phosphoric acid or potash. The seriousness of such a condition in relation to plant growth is understood when it is remembered that plants usually require these three materials in practically the reverse proportions.

Thus we find muck-land farmers in increasing numbers using fertilizers relatively high in phosphoric acid and potash. For example, the Ohio Station is recommending a 2–8–8 fertilizer for onions and celery on muck land, while New York suggests an 0–10–10 for onions and a 4–8–10 for celery. Indiana recommends an 0–12–12 fertilizer for cereals and general crops in case the soils are acid, while on non-acid soils, 0–8–24 or straight potash is advocated.—*Soil Improvement Committee.*



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International Agricutural Corp.
F. S. Royster Guano Co.
Virginia-Carolina Chemical Co.

ARKANSAS

Little Rock—
Arkansas Fertilizer Co.

CALIFORNIA

Azusa—
Geo. W. Fuhr
Covina—
Sun Fertilizer Co.
Glendora—
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Agricultural Chemical Works
American Agricultural Chem. Co.
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Mutual Orange Distributors
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Spreckles Bros. Comm. Co.
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San Francisco—
A. M. Bloomer Co.
California Fertilizer Works
Getz Bros. & Co.
Growers' Fertilizer Co
Meyer Wilson & Co.
Mountain Copper Co., Ltd., Fert. Dept.
Pacific Bone, Coal & Fert. Co.
Pacific Guano & Fertilizer Co.
Potash Importing Corporation
Western Meat Co.

CONNECTICUT

Bridgeport—
Berkshire Fertilizer Co.
Hartford—
Olds & Whipple, Inc.
Middletown—
Rogers & Hubbard Co.
New Haven—
American Agricultural Chem. Co.

FLORIDA

Bradentown—
Gulf Fertilizer Co.
Clearwater—
Gulf Fertilizer Co.
Daytona—
Cornelius Christiancy Co.
Eustis—
Gulf Fertilizer Co.
Fernandina—
Nitrate Agencies Co.
Frostproof—
Gulf Fertilizer Co.
Jacksonville—
American Agricultural Chem. Co.
Armour Fertilizer Work
International Agricultural Corp.
Nitrate Agencies Co.
Virginia-Carolina Chemical Co.
Wilson Toomer Fertilizer Co.
Lake Hamilton—
Gulf Fertilizer Co.
Orlando—
Gulf Fertilizer Co.
Tampa—
Gulf Fertilizer Co.
Terra Ceia—
Gulf Fertilizer Co.
Winter Haven—
Gulf Fertilizer Co.

GEORGIA

Albany
Armour Fertilizer Works
Swift & Company
Virginia-Carolina Chemical Co.
Athens—
Empire State Chemical Co.
Georgia Phosphate Co.
Hodgson Cotton Co.
Atlanta—
A. D. Adair & McCarthy Bros. Co.
American Agricultural Chem. Co.
Armour Fert. Wks. (So. Hdqrs.)
International Agricultural Corp.
F. S. Royster Guano Co.
Swift & Company
Virginia-Carolina Chemical Co.
Augusta—
Southern State Phosphate & Fertilizer Co.
Virginia-Carolina Chemical Co.
Baxley—
R. L. Lewis Co.
Columbus—
International Agricultural Corp.
Cordele—
Read Phosphate Co.
Macon—
F. S. Royster Guano Co.
Pelham—
Pelham Phosphate Co.
Savannah—
American Agricultural Chem. Co.
G. Ober & Sons Co.
Mutual Fertilizer Co.
Read Phosphate Co.
Reliance Fertilizer Co.
Savannah Guano Co.
Southern Fertilizer Co.
Swift & Company
Virginia-Carolina Chemical Co.
Toccoa—
Swift & Company
Valdosta—
Georgia Fertilizer & Oil Co.
Vidalia—
Vidalia Chemical Co.

ILLINOIS

Chicago—
Armour Fertilizer Works
Darling & Company
Swift & Company
National Stock Yards,
St. Clair County—
Swift & Company

INDIANA

Hammond—
Swift & Company

Indianapolis—
Rauh & Sons Fertilizer Co.
Smith Agricultural Co.
New Albany—
Calumet Fertilizer Co.
Read Phosphate Co.

KENTUCKY

Louisville—
Armour Fertilizer Works
Federal Chemical Co.

LOUISIANA

La Grange—
Swift & Company
New Orleans—
Armour Fertilizer Works
Nitrate Agencies Co.
Swift & Company
Shreveport—
Swift & Company
Virginia-Carolina Chemical Co.

MAINE

Houlton—
International Agricultural Corp.
Presque Isle—
Armour Fertilizer Works

MARYLAND

Baltimore—
American Agricultural Chem. Co.
Armour Fertilizer Works
Baugh & Sons Co.
Griffith & Boyd Co.
Miller Fertilizer Co.
Nitrate Agencies Co.
G. Ober & Sons Co.
Piedmont Mt. Airy Guano Co.
F. S. Royster Guano Co.
Swift & Company
Virginia-Carolina Chemical Co.
Salisbury—
W. B. Tilghman Company, Inc.

MASSACHUSETTS

Boston—
American Agricultural Chem. Co.

MICHIGAN

Detroit—
American Agricultural Chem. Co.

MISSISSIPPI

Jackson—
Virginia-Carolina Chemical Co.
Meridian—
Meridian Fertilizer Factory
Tupelo—
Tupelo Fertilizer Factory

MISSOURI

St. Louis—
American Agricultural Chem. Co.
Armour Fertilizer Works
Swift & Company

NEW JERSEY

Bound Brook—
Nitrate Agencies Co.

NEW YORK

Buffalo—
American Agricultural Chem. Co.
International Agricultural Corp.
New York—
American Agricultural Chem. Co.
Armour Fert. Wks. (East.Hdqrs.)
International Agricultural Corp.
Mutual Fertilizer Co.
National Aniline & Chemical Co.
Nitrate Agencies Co.
Virginia-Carolina Chemical Co.
Zaldo & Martines Exchange Co.

NORTH CAROLINA

Charlotte—
International Agricultural Corp.
F. S. Royster Guano Co.
Swift & Company
Durham—
Virginia-Carolina Chemical Co.
Greensboro—
American Agricultural Chem. Co.
Armour Fertilizer Works
Swift & Company
Henderson—
American Agricultural Chem. Co.
Lillington—
Farmers Cotton Oil Co.
Harnett Oil & Fertilizer Co.
New Bern—
G. Ober & Sons Co.
Raleigh—
F. S. Royster Guano Co.
Tarboro—
F. S. Royster Guano Co.
Washington—
Pamlico Chemical Co.
Wilmington—
Acme Manufacturing Co.
Nitrate Agencies Co.
Swift & Company
Virginia-Carolina Chemical Co.
Wilson—
Farmers Cotton Oil Co.
Winston-Salem—
Virginia-Carolina Chemical Co.

OHIO

Cincinnati
American Agricultural Chem. Co.
Armour Fertilizer Works
International Agricultural Corp.
Virginia-Carolina Chemical Co.
Cleveland—
Swift & Company
Columbus—
Smith Agricultural Chemical Co.
Dayton—
Wuichet Fertilizer Co.
Sandusky—
Armour Fertilizer Works
Toledo—
F. S. Royster Guano Co.

OREGON

No. Portland—
Swift & Co.
Portland—
Portland Seed Co.

PENNSYLVANIA

Philadelphia—
Baugh & Son
I. P. Thomas & Son
Tunnel & Company
Reading—
Keystone Bone Fertilizer Co.
Wadsworth—
Ohio Match Co.
York—
York Chemical Works

SOUTH CAROLINA

Anderson—
Anderson Phosphate & Oil Co.

Charleston—
American Agricultural Chem. Co.
Etiwan Fertilizer Co.
Maybank Fertilizer Co.
Planters Fert. & Phosphate Co.
Read Phosphate Co.
Virginia-Carolina Chemical Co.

Chester—
Swift & Company

Columbia—
American Agricultural Chem. Co.
Armour Fertilizer Works
Darlington Guano Co.
F. S. Royster Guano Co.
Swift & Company
Virginia-Carolina Chemical Co.

Greenwood—
T. M. Miller Co.

North—
J. E. Culler Co.

Spartanburg—
American Agricultural Chem. Co.

TENNESSEE

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Nashville—
Armour Fertilizer Works
Read Phosphate Co.
Virginia-Carolina Chemical Co.

VIRGINIA

Alexandria—
American Agricultural Chem. Co.

Danville—
G. Ober & Sons Co.

Lynchburg—
Pocahontas Guano Co.

Norfolk—
American Agricultural Chem. Co.
Baugh & Sons Co.
Farmers Guano Co.
International Agricultural Corp.
Priddy & Co.
Robertson Chemical Co.
F. S. Royster Guano Co.
Swift & Company
Virginia-Carolina Chemical Co.

Portsmouth—
G. Ober & Sons Co.

Richmond—
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WASHINGTON

Seattle—
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Quebec

Montreal—
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Ingersoll—
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Read over the conditions as outlined below. By arrangement with the editors of BETTER CROPS, the prize-winning essay and such other manuscripts as are suitable for publication will appear in the magazine.

The following men have agreed to act as judges, insuring a fair consideration of every manuscript submitted:

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Persons Eligible — All readers of BETTER CROPS, excepting employees of the Potash Importing Corporation.

Subject — The subject must be "Potash Pays" and the subject matter should offer definite proof of this statement.

Length—Manuscripts of over 2,000 words will not be considered. However, essays of a few hundred words have equal chance with longer articles.

Manuscript—It is desirable that essays submitted be typewritten on one side of white paper, preferably regular letter size, 8½ x 11 in., but the judges will give equal consideration to any essay not so written.

Contest Closes — The contest is now open. It will close at midnight, May 1, 1924. All manuscript in envelopes bearing a post mark later than this date will not be eligible.

Basis of Award—In judging the essays the judges will rate them on the following basis: Facts 50%; Photos or illustrations 25%: Presentation 25%. There will be one prize of $50 in gold. In the event of a tie, the writers of each of the winning manuscripts will receive $50 in gold.

Method of Payment—As the contest closes at midnight, May 1, 1924, the prize winner will be announced in the June, 1924, issue of BETTER CROPS and the prize mailed to the winner by May 25, 1924.

Right to Publish — The Potash Importing Corporation of America reserves the right to publish and copyright each and every manuscript submitted in this contest, either before or after the closing of the contest. It is understood that any manuscripts so published and copyrighted which do not win the prize shall be paid for at the rate of 1c a word and $3 per photo, according to the number of words and photographs actually published. No manuscripts will be returned.

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Contest Editor

POTASH IMPORTING CORPORATION OF AMERICA

81 Fulton Street New York City

Leave It to the Boys!

(*From page 20*)

vidual Club Boys; this being our contribution as the County Farm Bureau to the Club Boys of the County.

"We hereby authorize the County Agent to purchase the seed, and fertilizer as provided in the budget, to pay for same from the Hinds County Farm Bureau Club Boys Fund, provided by our note; to distribute same as provided by the budget; to get the necessary notes from the individual boys and from the margin fund to use $1.50 per boy in getting a suitable sign made for each individual to be used by him in advertising the educational features of his project."

Of the 154 boys enrolled, 101 shipped their cotton to the County Farm Bureau at Jackson where it was ginned on one gin and the seed kept pure. The net amount of money paid to these 101 boys, after paying all freight charges, all ginning and handling charges and all fertilizer, seed and sign board bills was $3,560.60 or an average clear profit per boy of $35.25. This would not have been considered an unusual profit for a normal year on an acre of cotton given special attention but is an elegant average profit on 101 different acres scattered throughout the county in what is generally recognized in Mississippi as the most unfavorable cotton year this section has ever had. The highest net profit on an acre was made by Sibbie McRae of Clinton whose net profit check was $132.62. The lowest net profit check was 97 cents made by a youngster at Terry whose crop was largely drowned.

A number of the club members did not pool their cotton for one reason or another and some of the highest yields made in the county do not figure in the above average. For example the above average does not include W. H. Canterbury. Jackson, Rural No. 3, who made 1,120 pounds seed cotton, ginned a 410 pound bale and stood third in the county in yield, having made nearly twice as much cotton on his one acre as his father made on nine acres. Neither does it include John Lake Gibbs of Learned, a ten year old brown-eyed youngster, who outstripped all other members of the Learned Club and gained a nice bale of cotton on his father's own gin. Numerous other individual records could be mentioned if space permitted.

The signboards attracted the

Jim made as much on his acre as his father made on seven acres.

A group of boys at Learned, Mississippi, displaying their signboards. They were not stingy with their secret but passed it along to other Hinds County farmers.

attention of everybody who passed, for one condition was that the patch must be planted near a public road where it could be seen. The boys and their fathers learned many lessons in addition to the judicious use of fertilizers. For example in the vicinity of Edwards a negro boy and a white boy, both cooperators, had their cotton side by side. The land was the same, and the preparation fertilizer and cultivation were the same except that the negro boy saved back 100 pounds of his Nitrate of Soda and made a side application when the cotton was about knee high. He made 150 pounds more seed cotton than his white neighbor made. This may not always work out this way but it made the white farmers in that neighborhood think and when folks think they can take care of themselves.

A few of the boys poisoned. Some got negative results and some got marked increases in yield over their neighbors who did not. But a study of the poisoning results has no place in this article.

On a whole it may be conservatively said that this project has turned the attention of every farmer in Hinds County to the intelligent use of commercial fertilizers as nothing else would have done and has convinced them that the liberal and intelligent use of commercial fertilizers together with the proper system of rotation and rapid, thorough cultivation during the growing season are essential factors in profitable cotton production under boll weevil conditions.

Missiles and Mignonettes

Your publication BETTER CROPS is certainly the Peacock's Nail File. Too many so-called agricultural publications are merely so many reviewing institutions that are in a prosy rut—and don't forget that a rut is only a coffin with two ends knocked out. All of us enjoy snap and spice to embellish cold facts; that is why Heinz sells so much "Ketchup."—*F. J. Schnedierhan, Asst. Plant Pathologist, Winchester, Va.*

I like your BETTER CROPS very much, indeed, and feel sure it must do a lot of good.—*J. H. Stewart, Commissioner of Agriculture, Charleston, W. Va.*

BETTER CROPS is very instructive and interesting.—*Marcel B. Bonnier, Agronomist, Ste. Thirise Blainville, Quebec, Canada.*

Am glad to read BETTER CROPS. It's "high-protein" feed.—*F. B. Bomberger, College Park, Md.*

I have been receiving your BETTER CROPS magazine and get a lot of help from it.—*E. M. Brodway, County Agent, Plymouth, Mass.*

Am enjoying BETTER CROPS immensely —keep the good work up.—*Hazel E. Wickwire, Sec'y Treasurer, Schoolcraft, Mich.*

We think that BETTER CROPS is more than fine. Let the good work continue, I'm with you.—*W. A. Haynes, Lewisburg, Tenn.*

By Ted Butlar

BETTER CROPS' Washington Correspondent

If we are of the opinion that anything along legislative lines should be passed and would bring permanent relief to American agriculture, then things don't look so rosy in Congress at this writing, notwithstanding the fact that the legislators are giving a lot of time to the agricultural measures. The first major bill to come up for final vote in the Senate went down to defeat by a vote of 41 to 32. It was the bill originally drafted to appropriate $50,000,000 for the making of direct loans to farmers in the four states, North and South Dakota, Montana and Minnesota, for the purpose of buying livestock as a means of promoting diversification.

Before the livestock loan measure got out of the Senate Agricultural Committee an additional $25,000,000 was tacked on to it with the proviso that it should apply to all farmers who were in need of such loans. Then when it got on the floor of the Senate amendments were offered thick and fast. For awhile there was every reason to believe that it would become an "omnibus bill." When an amendment was offered which would put the government into the fertilizer business it was straightwith pointed out that the country had a sufficient supply of fertilizers and there was no possibility of high prices. Whereupon the amendment was speedily killed. And so were all amendments for that matter.

It was quite generally believed that the livestock loan bill would be passed for it was looked upon as the "favorite son" and carried the endorsement of President Coolidge who, by the way, is giving a lot of sympathetic thought and attention to the problems of the farm. Defeat of the many amendments lost some votes for the bill when it came up for the final verdict and it was evident that a few Senators preferred the bill which would set up an agricultural export corporation, so did not give the loan measure their hearty support.

Undoubtedly it will be sometime after the April issue of BETTER CROPS goes to its subscribers before a deciding vote is taken on the export corporation bill, the second big measure to come to bat. Although Congress is in a receptive mood and casting about for some sort of an agreeable piece of legislation, it is very doubtful whether the export corporation will be sanctioned by both branches of Congress. Some say it may get through the Senate but not the House. Renewed opposition has sprung up against it, coming from those who say that it is price-fixing in character and casts economic laws of supply and demand to the four winds. Some of this opposition comes from farmers although many of the larger farm organizations are giving it their vigorous support.

Not all farmers coming and writing to Washington agree that legislation will really and effectively help the farmer. Those who take

this viewpoint contend that farmers, through their own efforts and personal sacrifices, have withstood the worst period of depression since 1920 that this country has ever known—and without the assistance of legislation. And if agriculture has been able to weather the storm by a "pull on its own bootstrap," there is nothing which can permanently shake the fundamental strength of farming regions. "Give us an equal chance and we will pull ourselves out of the hole without the assistance of legislation," they say.

But that is beside the point. My assignment from Jeff is to review briefly what is going on within the legislative grist mill. Well, to date something in the neighborhood of 600 individual bills affecting agriculture have been "introduced and ordered to be printed." Of course, a lot of these bills are minor in character and some of them will never find their way out of the committees to which they are referred, no matter how sympathetic Congress may be. It would be a physical impossibility to consider all of them.

Numerous agricultural college and experiment station people have been in Washington of late testifying on behalf of the bill which would give additional Federal appropriations to state experiment stations. Each station would receive $15,000 additional for the fiscal year, 1922, $25,000 for 1923, $35,000 for 1924, $45,000 for 1925, $55,000 for 1926, $65,000 for 1927. $75,000 for 1928, $85,000 1929, and $85,000 for each fiscal year thereafter. These funds would be used for investigations or experiments bearing directly on the production, manufacture, use, distribution and marketing of agricultural products.

Interstate marketing would be given a boost in a bill introduced by an Oklahoma Senator. It proposes to establish a national marketing organization on a county basis, supervised by a board in Washington. The object of the organization would be to buy, sell or store articles produced or required on the farm. An appropriation of $24,000,000 would be credited to the Department of Agriculture to start the organization off with.

Seventy-five per cent of every congressional appropriation for extension and demonstration work in agriculture and home economics would be spent for salaries and expenses of county farm and home demonstration agents and their assistants if a bill introduced by a Representative from Louisiana becomes a law. This arrangement would not apply to the initial $10,000 appropriated to each state under the Smith-Lever Act. It would not prevent state authorities from applying supplementary appropriations for specialists or investigations, etc.

Once again the truth-in-fabric bill has found its way into legislative mill. It would require that all fabrics and garments purporting to contain wool carry a specific statement of the percentages of virgin wool, shoddy, cotton and silk going into them. This is about the third time that such a measure has been introduced in Congress. Wool farmers and representatives of farm organizations are lined up back of the measure.

Those who would "corner" the market of any necessity of life would be the recipient of severe penalties under a bill only recently introduced. Another measure along this line would prohibit speculation in grain and food products.

These are only samples. Every phase of agriculture is included in the many bills still pending. What will finally come out of the "Pandora's box" remains to be seen.

More Profits from Sugar Beets

(*From page 12*)

it is obvious that there is a mutual desire to select a fertilizer formula which will result in the production of large yields of sugar beets having a high sugar content and high purity.

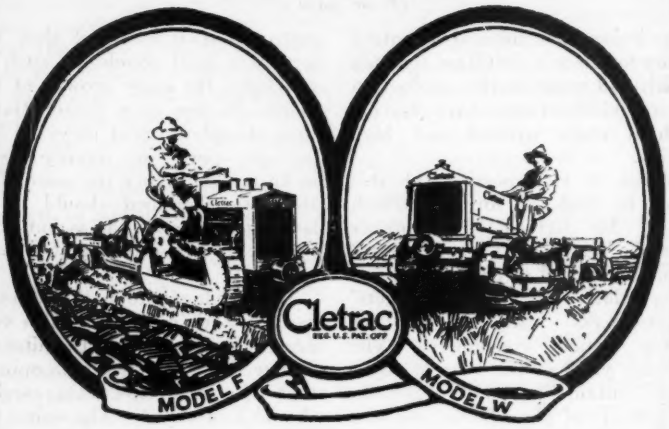
While it is impossible at this time to state a formula which might be termed "the proper formula for sugar beet fertilizer" it might be well to point out a few facts relative to the sugar beets' requirements. Sugar beets are heavy potash consumers. The average yield of ten tons of sugar beets contain 71 pounds of potash; 15 pounds of phosphoric acid and 30 pounds of nitrogen. Thus it is evident that sufficient available potash must be present to meet the plants requirements. While it is true that some writers contend that the proper fertilizer for sugar beets should contain a larger proportion of phosphoric acid than of potash the writer's experience during over ten years of careful study and experiments leads to the conclusion that, with few exceptions, the potash content of the mixture should be the highest.

Since it is true that sugar formation is not perfected until the sugar beet reaches the stage of maturity it is essential that the fertilizers used should be such as will force the early growth of the plant. It has been demonstrated that phosphoric acid plays an important part in forcing early maturity and hence the amount of the article applied should be in larger proportion than is indicated by the composition of the sugar beet.

In order to stimulate the desirable early growth nitrogen is also very essential. In selecting the nitrogen carrier the writer is of the opinion that organic and slow acting carriers should be avoided. The writer has obtained the best results by using sodium nitrate but has found that where liberal amounts of sodium nitrate are used a liberal amount of potash should also be applied for the effect the latter has upon the structure of the leaves.

Space would not permit the presentation of all the theories which are set forth relative to the function of potash in sugar beets. It has been demonstrated that the availability and the amount of potash in the soil has a direct bearing upon the structure of the sugar beet and the sugar content of said beet. It has also been found that when

Blocking and thinning sugar beets



Plowing at the rate of 6 to 10 acres a day, Cletracs make quick work of the biggest fields

Bigger Profits for the Farmer

Not only do Cletracs enable farmers to plow many acres in a day, but they also make every acre turned over produce more, and greater yields mean bigger profits to the farmer.

A Better Seed Bed Insures a Bigger Crop

But Cletracs do more than simply a good job of plowing. They are admirably suited for ground fitting because of their crawler construction. The broad tracks carry Cletracs along over the plowed land without slip at full speed, mellowing the ground into a fine seed bed, but do not pack it down. A well-preserved seed bed is the farmer's best assurance of a bigger yield and a better crop.

A big modern factory with upwards of five acres of floor space under roof and thirty thousand Cletracs in use in the United States, Canada and seventy foreign countries are time-tested evidences of Cletrac's successful operation.

THE CLEVELAND TRACTOR COMPANY
CLEVELAND, OHIO

sugar beets have a liberal supply of available potash they are less subject to rootlet and leaf diseases.

Various methods have been advocated in the matter of fertilizer application. The method followed by the writer follows: From 300 to 500 pounds of high grade commercial fertilizer per acre are applied in fractional dressings of from 100 to 150 pounds per acre per dressing.

The applications are made broadcast and the fertilizer is worked into the soil. During the early part of the growing season an application of 100 pounds of sodium nitrate is made. In instances where the grower will not use more than 125 pounds of fertilizer the article is drilled in with the seed.

In conclusion it may be said that there is great need for continued experimentation in this field but facts that have thus far been ascertained indicate that the use of high grade complete fertilizers is one means of increasing the growers' profits.

How We Solved Our Publicity Problem

(*From page 14*)

is made to get the leading farmers of the county to write articles on Livestock subjects dealing with their own experience along those lines. We have found it rather hard to get very many farmers from our county to write articles and in the majority of cases when they do, it is necessary to touch them up more or less before they are published. In every case we reserve the right to reject an article if it is destructive in nature. On the other hand if we invite criticism and helpful suggestions. The time consumed in getting the material together for the page at first required at least one day a month, but during the last year the greater portion of the material is prepared during the month at different times when the results of the project or event are clearly in mind. One drawer of the desk is used entirely for material of this nature, so that at the end of the month two or three hours is usually enough time to get the material in shape for the editor. The task is not nearly as difficult as it appeared at first and at no time during the past two years has there been any difficulty in getting material for the page, in fact, the majority of the time two pages of material are available.

We feel that the method outlined has been a good one for our particular case, while we do not claim it is infallible or one that can be adopted in every county in the state, yet it has been a means of getting the desired results in our county. We have been able through this method to reach every farmer in the county once each month and to get before him all of the information that we desire without any cost whatsoever to the Farm Bureau. In the second place we now have the cooperation of every paper published in the county and last but not least the cooperation of the banks. Each one of them, we feel, has a different attitude toward the farmer than before and is willing to cooperate along any other line that we suggest providing it is sound and feasible. The cooperation of the banks we feel is our greatest asset in Farm Bureau work in our county.

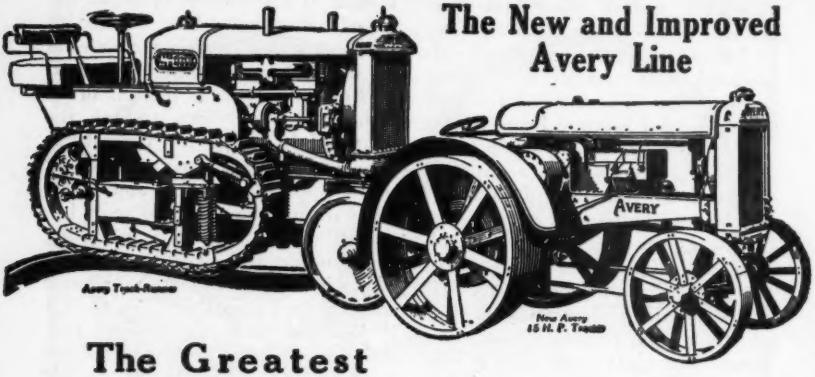
NOTICE TO READERS

Copies of the first volume of BETTER CROPS (*September, 1923-February, 1924*) *bound in black buckram or leather and stamped in gold are now available.*

For further information write,

M. E. Hidden,
BETTER CROPS
Better Crops Publishing Corp.
461 Eighth Ave. New York City

The New and Improved Avery Line



Avery Track-Runner

New Avery 15 H. P. Tractor

The Greatest Achievement in Tractor History

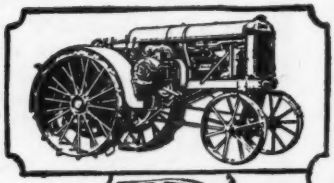
NEW models, many new improvements and refinements, greater power, more economy and lower prices—**the New Improved Avery Line** is really a sensation.

Never in tractor history have so many new improvements and desirable features been developed in one line. Avery machines now give better and more economical service and sell at lower prices.

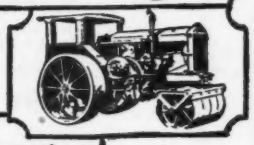
The Avery Line for 1923 includes the Improved Avery Track-Runner that runs on a roller-bearing track; the NEW Avery 15 H. P. enclosed gear, 3-plow wheel tractor, with two bearing belt transmission and two gear contact drawbar transmission; the Improved "Road-Razer" for shaving unpaved roads and streets smooth in summer and removing snow in winter; the Improved Avery Tractors for farming, threshing and road-building in the 20-35, 25-50 and 45-65 H. P. sizes; also grain-saving threshers in all sizes, motor cultivators, tractor plows, tillage tools and other drawbar and belt machinery.

Get the latest prices on Avery Tractors which now give you more horse-power per dollar than ever before offered.

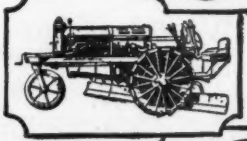
"It pays to Avery-ize"



Improved Avery 20-35 H. P. Tractor. Also built in 25-50 and 45-65 H. P. sizes

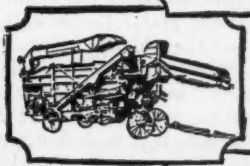


Improved Avery 25-50 H. P. 10-Ton Road-Roller-Tractor. Also built in 45-65 H. P. size

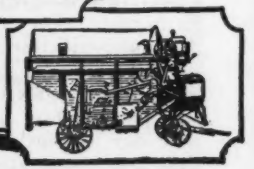


Avery "Road-Razer"

Avery Motor Truck



Avery Grain-Saver Thresher. Built in "Yellow-Boy," "Yellow-Kid" and "Yellow-Fellow" sizes.



Avery Header Thresher. Harvests and threshes the grain in one operation.

Factory and Main Office Peoria, Ill.

Branch Houses, Distributors and Service Stations covering every State in the Union.

AVERY

Tractors, Trucks, Motor Cultivators Threshers, Plows, etc.

Marketing a $100,000,000 Crop

(*From page 10*)

money his fruit brings, less only the actual cost of selling, which is annually fixed by a per box assessment on each box of fruit shipped.

Shipments and collections for fruit of these local associations is handled through the Central Exchange by the 21 District or Sub-exchanges, as they are called, which centralize the activities and interests of a group of associations in a particular locality.

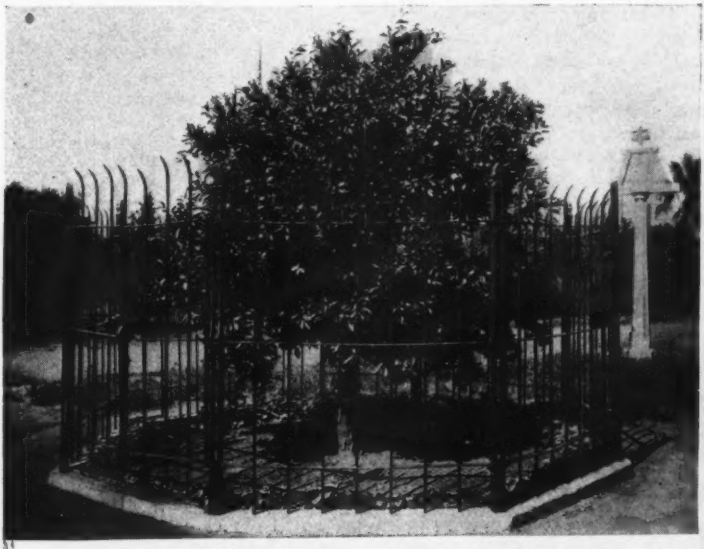
Through the sales department of the Central Exchange, each Sub-exchange and local association is kept in daily touch with the markets in which his fruit is being sold by the salaried representatives of the main organization, by wire and long distance telephone.

The well known law of supply and demand plays an important part in the daily sales of citrus fruits in both auction and private sale markets. Practically 40 per cent of California's citrus crop is now sold at auction. The prices being paid in the auction markets of the country very largely determine the prices for oranges and lemons in the private sale, or carlot markets.

However, varying factors in certain localities such as weather conditions, shortage or over-supply may raise or lower the quotations in that particular market as the case may be.

If the prices in a certain market on a particular day do not appeal to the shipper who has a car of fruit in that city, he can divert that car on to another market where conditions and prices are better.

Thus through the Exchange sales organization with salaried representatives in the larger and more important markets of this country and Canada the shipper is at all hours of the day in constant touch with conditions as they exist in that market, and can dictate as to the



One of the parent navel orange trees brought to Southern California by Mrs. Eliza Tibbets nearly 50 years ago—still producing good fruit.

WE solicit your inquiries when in the market for Potash Salts in any quantity or for fertilizer material of every description, direct or through our nearest branch office; these are maintained for your service.

H. J. BAKER & BRO.

81 Fulton Street, New York

BALTIMORE, MD. CHARLESTON, S. C. SAVANNAH, GA.
ATLANTA, GA. SAN FRANCISCO, CAL.
BUENOS AIRES, A. R.

Sales Agents for
POTASH IMPORTING CORPORATION OF AMERICA
United States distributors
of
Potash Salts, all grades, of the
GERMAN POTASH SYNDIKAT

Sole Agents
United States and Canada
ANTONY GIBBS & COMPANY
Inc.
Nitrate of Soda

Importers and dealers in Sulphate Ammonia, Blood, Tankage Phosphate and all fertilizer materials

sale of his fruit, accept or refuse offers.

The exchange has two advertised brands under which the fruit grown and shipped by its members is sold. The most widely advertised and nationally famous brand is SUNKIST.

This brand has been advertised for the past 16 years, and has now become synonymous throughout the world with the well known slogan "Uniformly Good Oranges and Lemons." Approximately 60 per cent of the fruit shipped by this organization comes up to the standards required to be shipped under this brand.

Another brand name which is now being advertised in the newspapers and street cars of the Southern states is the Red Ball brand, which includes the choice or second grades of citrus fruits. There is about 25 per cent of the Exchange crop in a normal year that comes under this brand. The remainder of the crop is shipped to the markets under the private non-advertised brands of the various associations.

Since the first advertising campaign in 1907 the per capita consumption of oranges and lemons has been more than doubled. And this has been accomplished in the face of greatly increased production of all fresh fruit crops in this country.

Consumers of the United States and Canada will now easily consume 22,000,000 boxes of oranges where formerly 8,000,000 or 10,000,000 boxes staggered growers with the fear of over production.

The advertising appropriation of this organization which now totals nearly a million dollars in a normal year, is raised by a 4½ cent per box assessment on oranges and a 7 cent levy on each box of lemons shipped. Approximately 25 per cent of the advertising appropriation raised in this manner is used in dealer service work with the wholesale and retail trade, promoting displays of the fruit and encouraging more intelligent handling of these fruits by the trade.

Based upon the shipments of the 1922-23 season the entire cost of Exchange sales and service, including advertising, was 2.49 per cent of the delivered value of the fruit, or less than the marketing cost alone of any other perishable food product marketed nationally, it is believed.

In addition to the primary objects of production and distribution, the Exchange has many supporting factors and branches of activity which go to make this organization one of the most successful co-operative marketing organizations in the world.

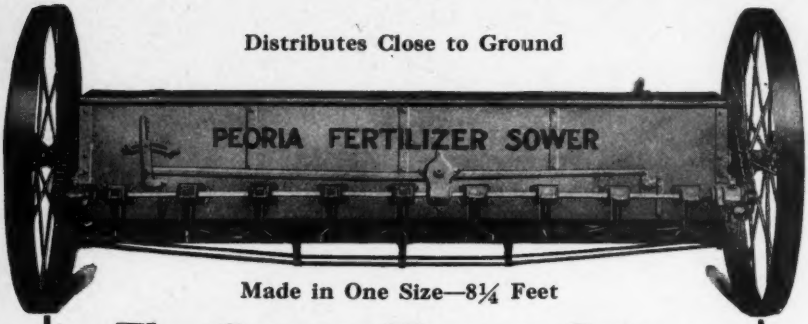
There is the Fruit Growers Supply Company, which is a subsidiary organization handling supplies and making necessary orchard purchases for the 11,000 growers of the Exchange.

Last year alone this organization purchased for its members nearly $6,000,000 worth of packing house supplies and $2,500,000 worth of orchard supplies. The production of this company's two lumber plants located at Hilt and Susanville, California, which make many of the boxes in which the grower's fruit is shipped, was valued at $4,000,000 last season.

There are the Exchange Lemon Products Company and the Exchange Orange Products Company, which are developing and marketing citrus by-products for the cull fruit of the growers.

There is the Sunkist Fruit Juice Extractor plant in Chicago, which is manufacturing and selling an electrical device for the extraction of orange and lemon juice at the soda fountains of the country. It is estimated that the 12,000 of these machines now in operation afford an outlet for 1,500 carloads of fruit annually that otherwise did not exist for those extremely large or small oranges and lemons which

Distributes Close to Ground



Made in One Size—8¼ Feet

The Greater Harvest Getter

FERTILIZER SOWER

WILL successfully distribute Lime and Fertilizers in any quantity desired from 100 to 6,000 lbs. under all circumstances, damp or dry. No Clogging; Light Draft; for two ordinary horses. Other machines of equal capacity are heavy draft for four horses.

The use of fertilizer has become a necessity to modern agriculture. Farmers of the Eastern States have realized for years the profit to be made from the use of fertilizers, and now the Western farmer is rapidly learning to look upon fertilizer as an "investment" rather than an "expense."

The American farmer is learning that by taking everything from his soil and returning nothing, he is headed straight for agricultural bankruptcy, and that every dollar spent on good fertilization is better invested than a dollar in the savings bank.

But fertilizer, to be most efficient, must be mixed with brains. It must be properly applied.

For many fields and many crops, a broadcast distributor offers the best solution of the problem of how to make the application.

There is no distributor on the market that can equal the New Peoria. It took years of actual experimenting in the field to finally produce this high-grade distributor. It bears little resemblance to the makeshift box-wheels-and-axle contrivances commonly found on the market.

We also manufacture Fertilizer Drills in all sizes.

For Catalog and Prices Address

Peoria Drill and Feeder Co.

Peoria, Illinois, U. S. A.

are not so easily sold to the consumer.

These are but a few of the accessory tools with which the citrus grower is attempting to meet and solve the ever increasing problem of intelligent distribution to the markets of this country and Canada.

Every orange and lemon grown in California must find consumption in one form or another if prosperity is to be the citrus grower's reward. And it is with this in view that every effort is bent to find an outlet for every orange and lemon produced, regardless of grade or quality.

Selling Ideas to the Farmer

(*From page 16*)

into practice the ideas they get from bulletins and agricultural papers. These are few and far between.

The man who is sold by means of pressure is a doubtful convert. In some instances he benefits from the enforced new ideas in spite of himself, but often this is not true. Some bankers have gone so far as to say to their cow milking clients that if they did not join a cow testing association they would not be considered good risks by the banks. A less forceful pressure is exerted when the neighbors and friends of the backward member place a mild boycott around him until he falls into line.

By far the most effective method of selling ideas is to sell service with them. The County Agent may spend all his time talking about better bulls to dairy farmers. He may absolutely convince the dairyman of the value to him of such an animal. However, because there is no breeder within walking distance with the exact bull that he wants, no bull is bought. In this case the proper procedure is for the County Agent to gather together pictures, pedigrees and records of all available purebred bulls within easy shipping distance and then sell the bull to the dairyman along with the idea. A little cooperative arranging for handling the shipments and the idea sale is complete with the bull in his new quarters.

Silo talk is not complete when the value of silage as feed has been demonstrated. It is not complete until the names of many builders of various types have been secured and a basis of competitive bidding established. When the contract has been let to the lowest bidder on the best type; when the silo has been built and filled; then, the project is ready for the first progress report.

There is one other means of selling ideas which should not go without mention. It would never sell any ideas to farmers by itself, but along with the other means, it is very potent factor. It is the means of popularity of vogue. If a certain percentage of people do any one thing, a certain smaller percentage will automatically follow suit. If pure bred bulls are a proven asset and if they are easy to obtain and if *everybody is buying them,* then it would be the style to have a purebred bull and many dairymen would seriously consider purchasing a bull who would be hard to persuade to go it alone. This is the justification for a certain amount of tactful publicity and display advertising in any good movement. The things that go over big are the popular things and the farmers are no different from other purchasers when they are buying ideas.

The Extension Service is a sales agency for ideas. There is no reason why it should not use any legitimate business means to make a sale and particularly the means of selling service with the idea. Demonstrating the value of better practices is not in itself sufficient. Only when the better practice has been put into actual use has the idea been sold.

Did you ever figure what it costs you NOT to use fertilizer ?

¶ The only complete fertilizer plant in the state. It is open for your inspection at all times. We shall welcome the opportunity to show you where

"WHITE DIAMOND" FERTILIZERS

are made, and why they are better.

ARKANSAS FERTILIZER COMPANY

Little Rock, Arkansas

Send for booklet—*"How Arkansas Farmers Have Increased Their Bank Accounts"*

Boys and Girls

(*From page 6*)

become stale and fruitless through too much or, more likely, too little thought, begin to answer questions, and in answering, learn. He who writes a book or makes a speech gets more out of it than he who reads or listens. Doing the thing clarifies the vision, and crystallizes the thought.

Edison says that the radio is making us a race of electrical engineers, and it is true that many of the more important refinements have come from boys and girls who had nothing to unlearn and who, accordingly brought to their work happy, unleashed, inquisitive minds —fresh and virgin.

All that we know we drink in through our eyes and ears; when we open our mouths we cease to learn —we merely tell others what we know, and where is the profit in that? Children, it is said, are all eyes and ears. They drink deep of all lessons, and with natural inquisitiveness use their mouths, not to *tell*, but to *ask*. The big job, as leaders of the Boys and Girls, is to answer questions, not first to suggest the question and then follow through with a ready-cut, free-from-knots answer. Let the questions be natural ones, childish questions that spring from the Eternal Query, and the job will be hard enough, probably too hard, if answers be found to half that can be asked.

Stale minds become freshened; blase and cynical outlooks become panoramas of faith; life loses its jaundiced atmosphere in the company of an inquiring mind. "Except ye become as little children ye shall in no wise enter the Kingdom."

It is only just to give tribute here to the thousands of men and women who have devoted so much of their time and thought to Boys and Girls Clubs. They have sown seed in fertile places and already we are reaping the harvest in thousands

of young men and women who are taking up agricultural pursuits with a broader knowledge and better training for their work than were available to previous generations.

Experience has taught us much. We have learned that boys and girls must be allowed to feel the pride of ownership and to enjoy the results of their work. In thus acknowledging the child's right to what he produces, the Boys' and Girls' Club movement has taken a big step forward. It has linked itself with a great human motive—the desire to own something—and has led to almost unbelievable achievements on the part of young people.

For what has been accomplished and particularly for those men and women who have helped to bring it about, I have only the deepest admiration. What I wish to suggest here are further developments and possibilities that seem to me desirable, and the most important of these is the attitude we take towards the Clubs. If we regard them simply as the chocolate coating for an educational pill, we shall lose out on the great possibilities that they now hold.

Let the leader of the Boys and Girls Clubs but realize that he is dealing in soul-stuff—in soul-potentialities; that in his charge are thirsty minds that have not as yet become sealed to outside impressions; that constructive inquisitiveness is delightful, a thing to be encouraged and guided, not a thing to be petulantly lashed into tame submission—and you have a leader who will develop the child-minds in his care along lines the potencies of which stagger the imagination.

So this, then is my contention: There are many kinds of movements, forward, backward, up, down. If the Boy and Girl movement is to be a progress onward and upward, there should be less of teaching and more of gently guiding the inquisitive young minds into fertile fields of endeavor.

Special Fertilizers

to meet special soil conditions are a step in advance in the

Fertilizer Industry

¶ "Sunrise Brand" Fertilizers are used by the most exacting trade with the knowledge that only the best materials go into the manufacture of our fertilizer.

LONG ISLAND PRODUCE & FERTILIZER COMPANY

RIVERHEAD, N. Y.

Manufacturers of

"Sunrise Brand" Fertilizers

Spring Is Here!

FILL me with sassafras, nurse,
And juniper juice!
Let me see if I'm still any use!
For I want to be young and sing again
Sing again, sing again!
Middle age is a curse!

It is Spring again, Spring again,
Spring again!
And the big bull oyster comes out of his cave
At the flood of the tides
And bellows his love to his mate where she rides
On the crest of the wave!

The crimson pylorus is singing his song
And the scarlet scialicas flame in the grass,
The snail is abroad with his periscope song—
Fill me with sassafras!
I want to be one
With the joy of the earth under the sun,
For the purple convolvus convolves and volutes
And the arbutus ups and arbutes—
Fill me with sassafras
And cohosh and buchu and juniper juice
And then turn me loose!

Out of the prison of Winter
The earth and its creatures emerge,
And the woodlouse sits on a splinter
And flirts with the cosmic urge.
Steep me in camomile tea,
Or give me a shot with a needle!
For I want to be young again—Me!
And woo with a lyrical wheedle!
Go page Amaryllis,
And tell her Spring's here with a heluva moon—

Oh, Chloe, come hither!
Here's a bald-headed Strephon that's willing to spoon!
He brings to the business a lyre and a zither
And a heart that's been chewed by the romance bacillus—
Nurse, the juniper juice,
And the sassafras, nurse, and then turn me loose,
Let me see if I'm still any use!

—DON MARQUIS in the *New York Tribune.*

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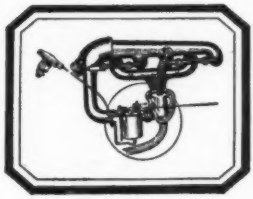

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